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Records of Motor Truck Transportation

Comparison with Horse Drawn Vehicles for Exacting Service—What Questions to Consider in Weighing a Motor Truck Proposition

BY ROLLIN W. HUTCHINSON, JR., M. E.

The rapid progress of the motor truck industry and the present reliability of service provided by motor-driven vehicles are shown in their wide application to general contractors' needs which are likely to be more varied and more exacting than the shipping and transportation problems of the industrial establishment. Some typical cases of the capabilities of the motor truck to perform unusual and trying work will therefore be of interest.

One of these is the use of motor trucks for removing muck and tunnel rock from a shaft of the Catskill aqueduct work in New York. The Pittsburg Contracting Company is building that part of the tunnel lying between 176th street and 206th street, and is using motor trucks to remove material from the lower shaft to the dumping ground at 129th street and the Hudson River. Two 6½-ton Saurer trucks are used. The distance from the farthest shaft to the dumping ground is about 2 miles. Every effort is made to keep the truck in constant motion. To effect this the loading of the truck is done at the shaft mouth from chutes as shown in one of the illustrations. The truck carrying a 4 yd. skip bucket is driven under these chutes and the material is loaded directly from bins into the skip. The trucks are equipped with special platform bodies designed to hold the buckets rigid. It is proposed to attach to each truck a trailer carrying a similar skip so that the total load for each trip will be approximately 13 tons. It is expected that by having the buckets suspended over the chutes leading from the bins they may be loaded while the truck is making a trip and a great deal of time saved in this way. The skips are removed at the dumping ground by a derrick boom.

5-Ton Truck Used for Hauling Ashes and Delivering Elevators

Each truck makes an average of 12 trips per day carrying 42 cu. yd. when operating without a trailer. It is estimated that 300 working days in the year is the maximum that a truck may be expected to operate. This allows time for overhauling and holidays. Figuring the cost of hauling this material according to table I where the motor truck is operated without trailer, the cost per cubic yard is approximately 29 cents against 80 cents where horse equipment is used. The interest on this case is figured on the full investment and no depreciation is charged against the truck. Interest is normally figured on half the investment as an average charge during the entire life of the truck; the depreciation is figured on a mileage basis covering the estimated life of the truck. If the figures shown in table I were altered to conform to this standard, the sum of $432 should be added to the total yearly cost. This would bring the daily cost to $13.74, making the cost per cubic yard 33 cents. From the standpoint of earning power, these figures show that the truck without the trailer hauling 42 yd. per day actually earns 47 cents per cubic yard or a net profit of $19.47 per day over the horse equipment.

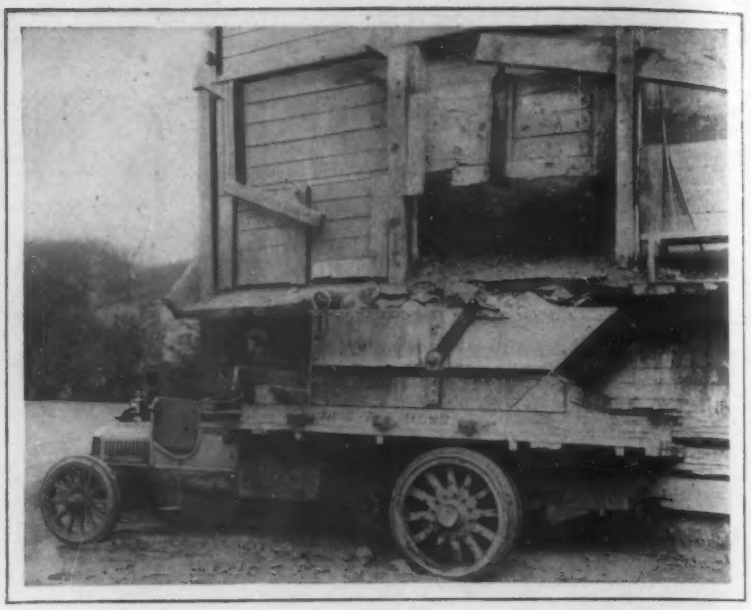
Among contractors the customary amount chargeable to depreciation on all kinds of equipment is said to be 60 per cent. on a three-year contract, making an annual charge of 20 per cent. If this method were used in figuring costs for operation of a motor truck in the same capacity as in table I, the amount chargeable to depreciation would be $1,260 per year or $4.20 per day and the total cost per cubic yard increased to 39 cents. This would still leave a large margin of profit to the credit of the motor truck against horse drawn equipment.

Estimating the cost of handling this material by motor truck with trailer when the interest is figured on half the investment and the depreciation is based on the mileage life of the truck, we find the cost per cubic yard to be 33 cents. By using a trailer in connection with the truck a much greater reduction of cost can be made. The addi-

S. DIESCHER & SONS,
Mechanical and Civil Engineers,
PITTSBURGH, PA.

tional investment entailed and the maintenance of the trailer would be more than offset by the increased capacity and the cost per cubic yard would be reduced to approximately 17 cents. Aside from this earning power of the truck, the ability of these trucks to move large quantities of material rapidly enables the other work carried on to proceed much more rapidly than if a horse equipment were used.

Another contractor using one 6½-ton truck, hauls cement and building material over 7 miles of very hilly country. Some of the grades encountered are one-half to one and one half miles long; and vary from 8 to 15 deg. Nine trips per day over these roads made an average day's work for this truck. It is loaded with 110 bags of cement on each trip, making an average load of 10,450 lb. In this work the truck replaces 12 teams of horses costing $5 per day for each team. One of these teams making approximately two trips per day over this road would carry 8000 lb. or 80 bags of cement. Twelve teams would therefore carry 96,000 lb. or 960 bags for approximately $60 or 6.3 cents per bag. The motor truck carries 990 bags per day for approximately $17, or 1.7 cents per bag.



Arrangements for Delivering Excavated Material to the Truck

Table I—Costs of a 6½-ton Motor Truck in Contractors' Service.
The material is excavated from aqueduct tunnel and the time of loading and unloading is 3 min. The material is dumped into bins and then to buckets by chutes at the shaft mouth. At the dumping ground the bucket is hoisted off the truck and dumped.
Conditions: 300 days per year; 50 miles per day; 15,000 miles per year; 3½ cu. yd. per trip in single bucket; 42 cu. yd. per day of 8 hr.

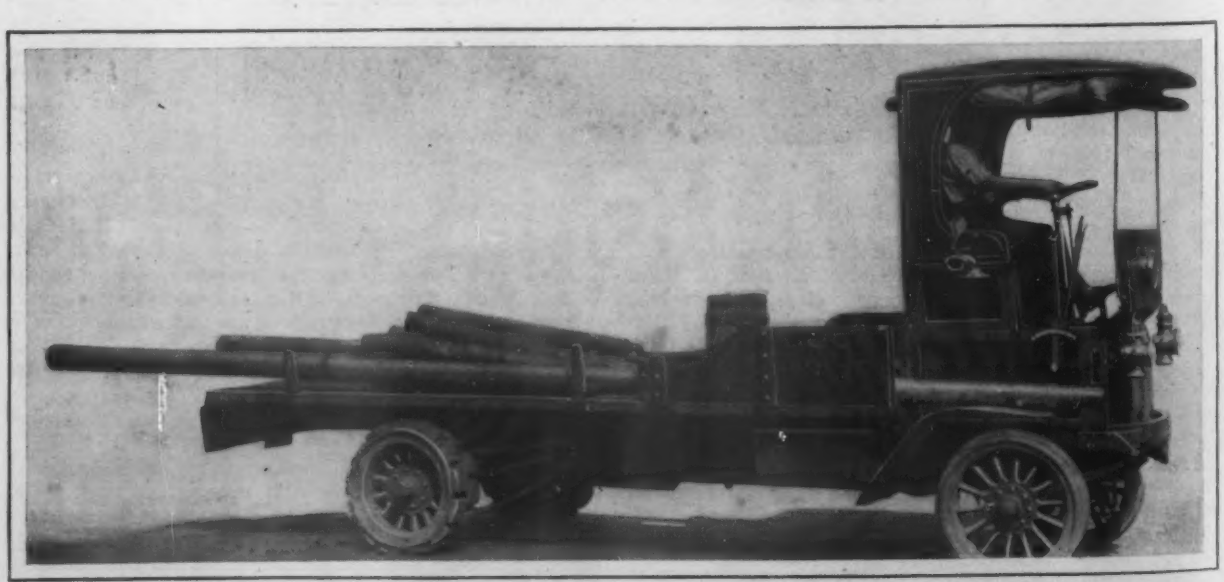
Investment:	
6½-ton chassis	$6,000
Special platform body	300
	$6,300
Fixed Charges:	
Interest on $6,300 at 6 per cent	$378
Insurance: liability to persons	75
Depreciation (not figured)	....
Driver at $21 per week	1,092
Garage, at 17.50 per month	210
	$1,755
Operating Charges:	
Maintenance at 4 cents a mile	$600
Gasoline at 2.4 cents (5 miles to a gal.)	360
Tires at 5.5 cents (8000 miles guarantee)	825
Oil and grease at 1 cent per mile	150
Total cost per annum	$3,690
Total cost per day	12
Total cost per yard	0.292
Total cost per mile	0.256

With horse teams it cost 80 cents per cubic yard to haul this material.

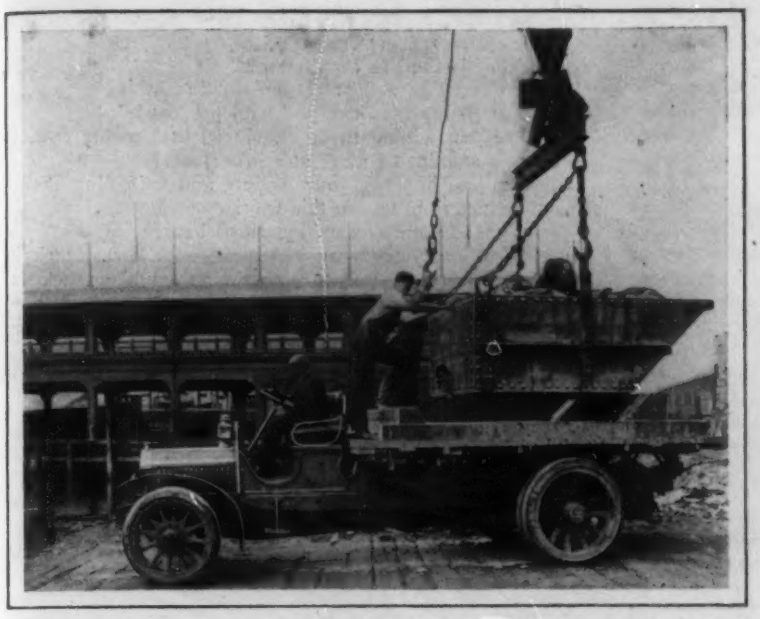
The Empire Engineering Company, working on a contract requiring the constant haulage of large quantities of cement and lumber, installed two 5-ton Mack trucks. These trucks made two trips per day over 18 miles of good road, replacing a horse equipment of ten teams. These trucks, loaded only one way, hauled approximately 20 tons of building material a day, at a maximum total cost of $40 or $2 a ton. If this work had been done by the ten teams the total cost would have been approximately $50 per day or $2.50 per ton.

The Keystone State Contracting Company, Yonkers, N. Y., uses a 6½-ton Saurer truck, with hand dumping body, hauling cement, coal and miscellaneous supplies. This truck makes local deliveries over good roads but in a very hilly section where the grades are constant and heavy. It replaces ten teams and the service rendered by this truck enables the company to carry on the building operations much more efficiently and economically than when a horse equipment was used.

A 5-ton truck is used for transporting steel and pipe by the Merrill Ruckgaber Construction Company, Cumberland, Md., which is constructing the dam and the hydro-electric system of the Evitts Creek Power Company. The truck is used exclusively in hauling pipe line material as well as concrete used in the construction of the dam and the truck is doing the work of four double teams, carrying as an average load, 100 bags of cement each weighing 100 lb., three sections of 36-in. iron pipe, five men and grocery supplies for the commissary department. The truck makes three daily trips from Cumberland to the site of the dam, a distance of 9 miles. In other words, the average daily mileage of this truck is 54 and its average load is as stated.



A 5-Ton Truck, Tioga Steel & Iron Company, Philadelphia, Replacing Three Double Teams



View Showing the Platform Which Carries the Skip

One of the views shows the wonderful versatility of the motor truck in building construction. This particular truck is a 5-ton machine equipped with a power winch operated by its engine; it hoists the brick, mortar and iron material used in the construction work. The truck also hauls the material to the site.

The illustration on page 1505 shows a 5-ton Mack truck used by the Otis Elevator Company, which employs it not only for carting away the ashes from the boiler plant, hauling coal and supplies, but also delivers its elevators to customers in and around Greater New York. Another picture shows a 5-ton truck in the service of the Tioga Steel & Iron Company, Philadelphia, which claims that it has been operated for fifteen months at a cost for repairs of $10, and that it has done the work of three double teams in delivering to customers in and around Philadelphia.

The opportunities for utilizing the motor truck in contracting work are many and varied. Aside from the increased speed and capacity obtained by using motor trucks the auxiliary devices with which the motor vehicle may be equipped are of great value in general contracting work. These devices have been in use a long time with horse drawn carts and their application to contracting work is well known, but their development as applied to motor driven equipment is not generally realized.

Too much stress cannot be laid on the importance of time in connection with motor truck work. The horse during the course of the day's work requires many rest periods, especially after a long haul over a severe grade and the efficient use of horse equipment demands that fully as much of the working day be given over to stops as is devoted to keeping the team in motion. For this reason the capacity of the horse is limited to his endurance and this in turn is dependent on conditions which are not under the control of the contractor. A period of very hot weather or a sudden fall in temperature, covering the streets with ice or snow, may render the horse almost useless; while if the weather conditions are favorable a number of heavy grades may necessitate either a reduction in the amount of work done by a single team or an increase in the number of horses required to pull a single load. It is therefore clear that the time taken in unloading such teams or the time spent by the teams in waiting to be loaded is not in reality wasted time but a necessity in the efficient handling of such work.

Attention Needed to Loading and Unloading

The motor truck has none of the limitations of the horse. While it is kept well oiled, well adjusted and supplied with fuel, it is always ready to work. It is not affected by hot weather nor do heavy grades require that it take a rest at the top of the hill. If it is to make money, however, it must be kept in motion. For this reason a motor truck should not be given the same treatment accorded to horses even though it may be worked on the same job. Motor trucks should not be allowed to stand for hours in line with horse teams and then blamed for not doing more work than the horses.

It is quite as important to arrange for the constant movement of a motor truck equipment after it has been bought, as it is to use great care in the selection of that particular make or type of truck most adaptable to the work that it is to do. By far the greater part of time unavoidably lost is lost in loading and unloading by methods that were used in connection with horse trucks; often no attempt being made to make use of the devices already available for saving time. Any device that can be installed to shorten the time necessary for stops will pay for itself and earn money right along.

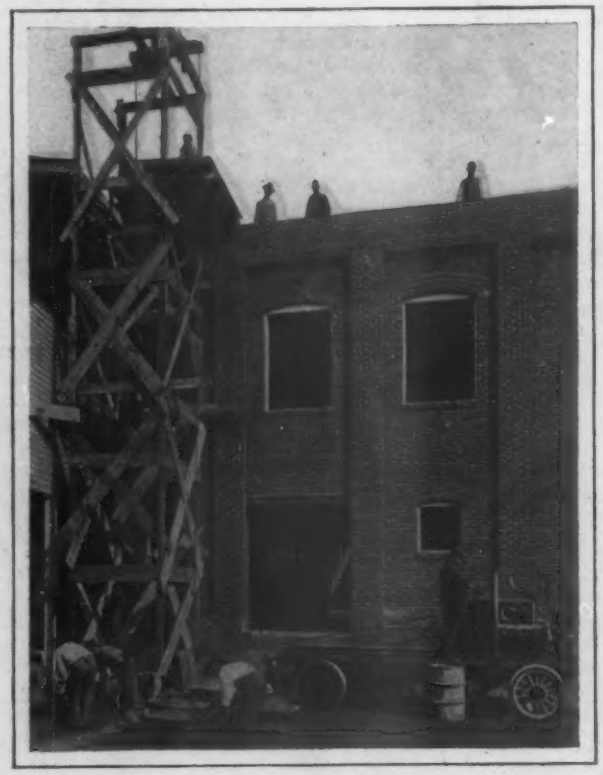
Two loading and unloading devices that have been used for years by contractors are readily available for use in a modern form with motor trucks. The dumping body and the winch have been used by contractors as an important part of their equipment for years, but they did not reach their highest development until after the introduction of the motor truck into this field. The use of the power driven winch on motor trucks is becoming more common every day. This device is operated by the engine and is

A 7-Ton Truck Doing the Work of Eight Teams of Mules on Long Island Road Construction

connected with the driving shaft and controlled by the truck driver. It is used in many cases with a crane or derrick for loading or unloading trucks. This crane or derrick may often be attached to the truck itself and so arranged that any part of the load may be removed without disturbing the surrounding units. A truck equipped with a power winch may be driven along the side of a building under construction and may hoist its load to the upper stories, saving much time in doing away with the labor and expense of re-handling the material.

It is possible in many cases to use removable bodies or racks as a means of saving delays due to loading or unloading. These bodies may be loaded and unloaded by means of the winch and may be placed in any position that may seem convenient. If the motor truck is operated in connection with horse trucks, the winch may be found to be extremely valuable in assisting the horse trucks over rough places or where foundations are being dug, in pulling them up the steep incline leading out of such excavations.

The power dump truck on which the body of the truck is raised by a shaft geared to the main engine drive is one of the greatest labor and time saving devices used in connection with motor truck work. It is operated by the



Truck Used to Deliver and Hoist Building Material

driver without leaving his seat and may be stopped and held at any desired angle. This body, however, is available for hauling ordinary builders' supplies and is particularly desirable where some of the material used is of such character that it slides readily and is not injured by rough handling. In dumping stone, sand, asphalt and other road building materials, the body may be elevated by the driver without leaving his seat and when the desired elevation is attained the machine may be driven slowly ahead, spreading the load over a considerable surface. The full load may be dumped in this manner from a 7-ton truck in 35 sec. from the time of its arrival at the dumping ground, without the necessity of the driver leaving his seat.

Questions to Be Answered in Considering the Motor Truck

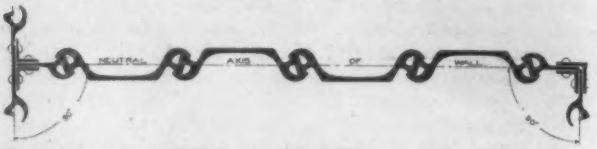
If you are not using motor trucks, ask yourself the following questions and answer them honestly:

1. How many horses have you?
2. How much money have you invested?
3. How much does it cost per day to operate your teams?
   (a) Including interest on total investment for horses, trucks, harness and other equipment?
   (b) Stable charges?
   (c) Drivers, etc.?
4. What is the life of a horse?
5. Do you figure depreciation on this basis?
6. How many tons can you haul per day?
7. Are you willing to be convinced that motor trucks can do this amount of work at a lower cost?
8. Can you improve your loading and unloading facilities to reduce time lost in this way?
9. What is your average length of haul?
10. How many trips can you make with horse trucks?
11. Do you know that a single automobile truck is doing the work of four horse teams in your business?
12. Is there any reason why the automobile truck cannot do as much for you?
13. Isn't it worth your while to investigate this situation?

New Steel Piling

For meeting the requirements of braced piling structures the Lackawanna Steel Company, Buffalo, N. Y., has brought out an arched web type of sheet steel piling. The characteristic feature of this section is the curling or arching of the web so that the mass of the metal lies to one side of the neutral axis of the section. The interlock is practically the same as that of the straight web piling which was illustrated in *The Iron Age*, June 8, 1911, in connection with a description of the raising of the battleship Maine in Havana harbor.

Referring to the accompanying engraving it will be noticed that the outer face of the web or what might be termed the extrados of the arch is flattened to lie in the same horizontal plane with the extreme outer faces of the members of the interlocked joint. In the piling wall the arches reverse with each pile with reference to the neutral axis of the wall and the total thickness of the wall



The New Arched Web Steel Sheet Piling and the Junction and Corner Sections Made by the Lackawanna Steel Company, Buffalo, N. Y.

at the center of each web is equal to but not greater than the thickness of the wall at the interlocking joint. At the same time it is pointed out that the arched section transmits the load to the support without as great a tendency to flatten out, as is found in corrugated sections made of rolled or bent plates. The haunches of the arch are thickened, giving increased strength at this point against spreading and also distributing the metal in the web with reference to the neutral axis so as to increase the inertia and modulus of the section. Where pressure comes on the external part of the arch it is transmitted to the waling timber through the interlocking members of the joint and in those piles where the internal part of the arch is subjected to pressure this pressure is transmitted directly through the metal to the waling timber throughout a wide contact.

The New Duff Jack Factory

The Duff Mfg. Company, Pittsburgh, Pa., exclusive manufacturer of Barrett lifting jacks, has purchased five acres of ground on Preble avenue, North Side, Pittsburgh on the lines of the Pennsylvania and Baltimore & Ohio railroads, and will start at once the erection of a new factory, which is expected to be the largest in the world devoted solely to the manufacture of lifting jacks. The new site of the Duff factory and the new site of the Pittsburgh Screw & Bolt Company occupy the Riter-Conley Mfg. Company's old property and adjacent ground, totaling about 12 acres, and lying close to the plants of the Pressed Steel Car Company, Standard Sanitary Mfg. Company and Edith furnace of the Carnegie Steel Company. The construction work on the factory and office buildings will commence about July 1. The Duff Mfg. Company's products are claimed to comprise the largest line of lifting jacks in the world, these jacks ranging in capacity from 1000 lb. to those capable of lifting 500 tons and over.

The Oxygraph for Cutting with the Oxy-Acetylene Flame

The most recently developed piece of apparatus intended for use in connection with the oxy-acetylene cutting process is the Oxygraph, which has been placed on the market by the Davis-Bournonville Company, 96 West street, New York City. It is constructed along the lines of the pantograph, its novel and most valuable feature being a mechanically propelled tracer. With this machine it is possible to cut curves and right-angled corners and it can be used for die making and cutting crank shafts of moderate dimensions. Fig. 1 is a view of the machine and specimens of its work are illustrated in Fig. 2.

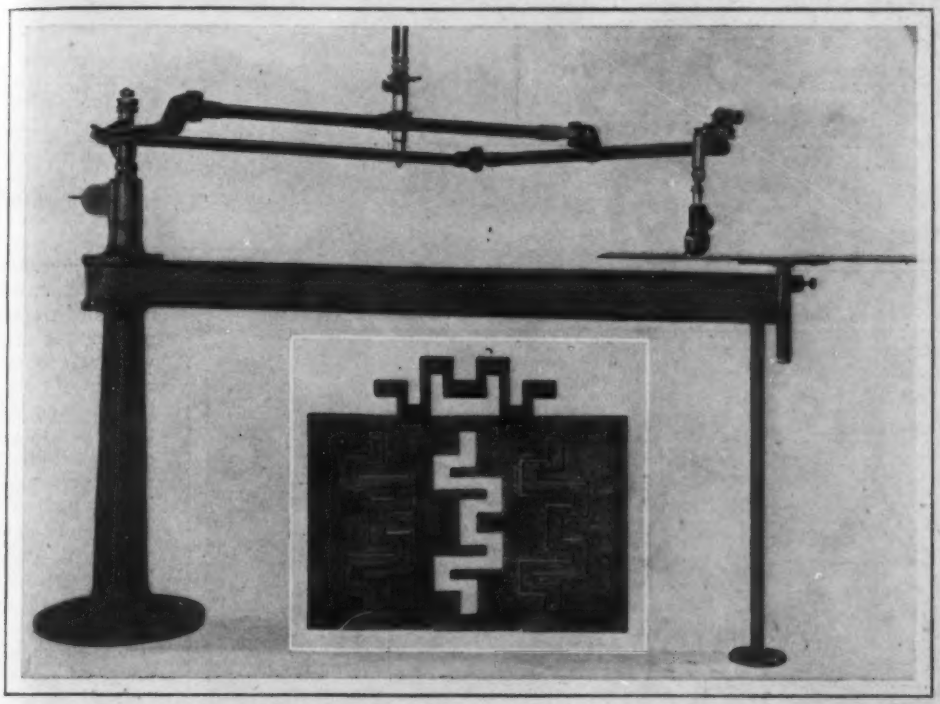


Fig. 1—The Oxygraph, a Machine for Cutting Irregular Shapes, Curves, Etc., by the Oxy-Acetylene Process Developed by the Davis-Bournonville Company, New York City.

The apparatus consists of a heavy cast-iron standard and base for supporting the machine, supports for the work while being cut, the tracing table, the motor-propelled tracer, the machine cutting torch and hose connections an oxygen regulator and either a high or low pressure acetylene regulator. The geared tracer is driven by an electric motor attached to the head of the machine, the current being taken either from a small storage battery or a wire attached to the electric light fixture. With a high quality of oxygen it is pointed out that the kerf is very narrow and the cuts are clean and sharp. The cutting is done with the oxy-acetylene flame, the oxygen cutting jet being the same as in ordinary practice except that the torch is designed especially for use with this machine.

In operation the drawing is laid on the tracer table and the operator turns on the current and guides the tracer along the lines of the drawing and the torch cuts an exact reproduction in the steel which is one-half the size of the drawing. The machine can cover drawings measuring 18 in. across, and this dimension can, of course, be increased by moving the piece being cut.

The capacity of the Oxygraph is steel 3 in. in thickness or less at a speed of 6 in. per minute. The crank shaft, which is shown underneath the machine in Fig. 1, was cut from a 1-in. steel plate in 8½ min. The pieces A, B and C, Fig. 2, were cut from a 3-in. piece of steel at the maximum cutting speed, and D, which required 22 in. of cutting, was turned out in less than 4 min.

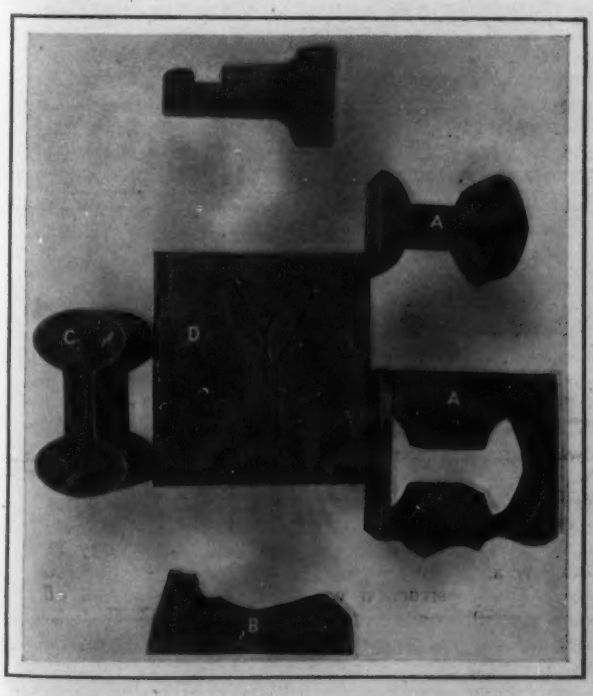


Fig. 2—Some Specimen Pieces Turned Out by the Machine

Foundry and Machine Shop Census

There were 13,253 foundry and machine shop establishments in the United States, employing 615,485 persons, when the thirteenth census was taken, according to statistics given out June 14 by the Census Bureau.

Of the total employed 9851 were proprietors and firm members, 21,754 were salaried officers, superintendents and managers, 42,242 were men and 10,627 women clerks; the average number of wage earners was 531,011. The value of products was $1,228,475,148. The value added by manufacture, which is the difference between value of products and cost of materials, was $688,464,000.

Pennsylvania, with an average of 86,821 wage earners, $210,746,257 value of products and $109,735,517 value added by manufacture, was considerably in the lead. The other leading States, with the exception of New York, held the same relative rank with respect to all three of the items mentioned. New York held second place, with $154,370,346 value of products and $92,749,146 value added by manufacture, but with regard to its average of 64,066 wage earners was third in order.

Crucible Steel Company's Earnings

The statement of profits of the Crucible Steel Company of America, Pittsburgh, for the nine months ended May 31, 1912, is as follows:

Quarter ended:		
November 30, 1911	$1,141,007.48	
February 28, 1912	1,142,767.42	
May 31, 1912	1,393,112.15	$3,676,887.05
Deduct charges and appropriations for the following purposes:		
Depreciation and repairs	$1,073,639.21	
Contingencies, corporation tax and interest on bonds of subsidiary companies	217,374.95	1,291,014.16
Net profits for nine months		$2,385,872.89

Ore Transporting on Island of Elba

Aerial Tramways and Other Arrangements for Unloading and Conveying Materials for Elba's Coke Ovens, Blast Furnaces and Steel Mills

BY C. A. TUPPER

The works of the Societa Anonima di Miniere e di Alti Forni Elba, commonly known in Europe as the Elba Company, which are located on the island of that name in the Mediterranean, may be considered as among the most self-contained of any in the world. Besides operating blast furnaces and steel mills, it has its own coke ovens, by-products plant, etc., and the iron ore is obtained from mines belonging to the company on the island itself. Only coal, from Wales or Germany, is purchased outside. The most noteworthy features of the plant, however, consist in the modern arrangements made for the handling of material, including power.

The iron ore is recovered from open workings in the mountains above Rio Marino on the East coast, as shown by the accompanying map, Fig. 1, in what are known as the Marina, Portello and Albano districts and also in the Calamita district at the Southeastern extremity of the island. The deposits of Elba are quite varied, including red hematite, brown hematite as limonite, magnetite and some siderite. The most common and valuable ore, however, is a hard, spathic, brown ironstone, crystalline in its structure and found to a large extent in a fibrous formation with ochre veins.

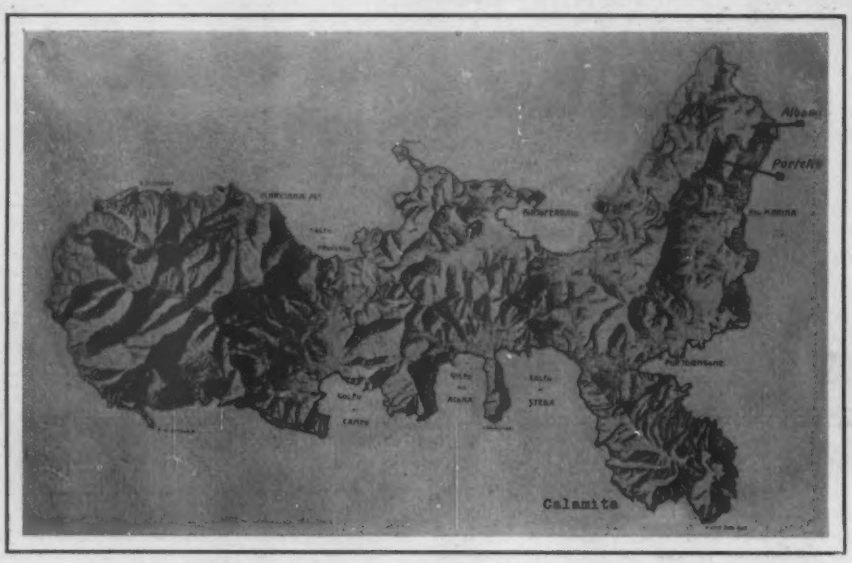


Fig. 1—Island of Elba; Ore from Albano, Portello and Calamita and Steel Mills at Portoferraio

While the principal deposits lie along the East coast, the blast furnaces of the company are located at Portoferraio on the North coast, with rugged mountain ranges between. It is impracticable, as a commercial undertaking, to carry the ore overland; hence it is transported by two aerial tramway systems to the coast and conveyed by bridge extensions to ship loading stations in deep water, as indicated on the map at Albano and Portello. This method of handling the ore is made necessary by the precipitous character of the coast and shallows which prevent cargo vessels from approaching very closely to the shore. Furthermore, the high, rock-bound coasts of Italy and Elba are separated only by a narrow strait, through which the wind sweeps with terrific violence during much of the time; and, under the most favorable conditions, there are not more than 150 days in the year when vessels can be loaded in this exposed roadstead; hence it became necessary to replace the old system of lighterage between vessels and the shore and to devise some rapid mechanical means of transporting the ore without interruption from the mines to the steamers in order to meet the company's increasing requirements.

For the unloading of the ore, on arrival at Portoferraio, the Elba Company was confronted with difficulties similar to those involved in its loading. While there is a point jutting out into deep water, this is occupied by a fortification, as shown in Fig. 2, and a pier straight from this tongue of land would not, in any case, have made a favorable landing place for the area occupied by the blast furnaces, ovens and mills. Nor did the depth of water in the bay permit any near approach to the only available shore. Besides, it was essential to provide means for the quick unloading of cargoes in the intervals between the storms which are so frequent on the North as well as the East coast. This might have been done by building an inner harbor and cutting a channel to it; but, as the writer understood when there, this would have involved great expense, including heavy blasting of the rock bottom of the bay; hence it was decided to build an unloading pier out into the roadstead, nearly parallel with the fortifications, and combine with the emptying of the vessels a con-

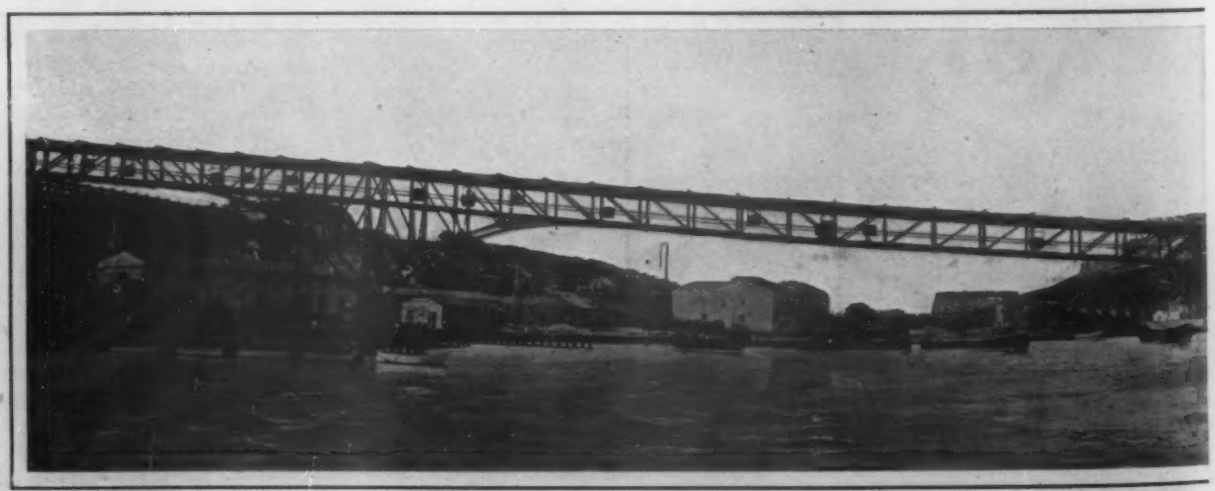


Fig. 2—Unloading Pier Extension to Shore

Fig. 4—Elba Furnaces and Mills, Showing Unloading Pier in Distance

tinuous automatic system of conveying the ore, as well as coal, limestone and other supplies, directly to the smelting works. This last was, in fact, the principal object to be accomplished from the standpoint of economy, and has in in the greatest suggestive value to Americans, by whom the same system might be applied to advantage in many places on the ocean or Great Lakes.

The essential features of construction, at the outward end of the system, are graphically illustrated in Figs. 2 and 3, although, from the foreshortening of the view, the pier appears much closer to the castle on the promontory than it really is, there being a wide stretch of water between. (See Fig. 4.) It was built on masonry piles pneumatically sunk.

The pier is 985 ft. long and has a width of 53 ft. at its extremity. On one side are five swinging cranes, with grab buckets, for unloading iron-ore and limestone, and on the other four extension bridge cranes, which can be turned in any position, for receiving coal. For each of these there is a hoisting drum with overwinding safety device, the sets on either side being placed in one engine house. These two structures are the outer ones shown in Fig. 2. The rope, in each case, passes up through the hollow crane column, so that it is not necessary to provide for any lengthening or shortening of the cable as the crane is turned.

The coal buckets, rising from the vessel hold and discharging at the lower end of the extension bridge, are returned to the upper end, for lowering again, by counterweights which are raised as they come in. The coal buckets, which hold about 1¼ tons each, dump automatically to a loading hopper for the furnace conveying system. Each crane, at the ordinary slow speed of operation, has a capacity of 30 tons hourly; so that four cranes, working simultaneously at the four holds of the average cargo boat can empty one of, say 2400 to 2500 tons capacity, in 20 hours; but, when necessary, the operations can be considerably accelerated. A great deal of the transport of coal, ore, etc., in the Mediterranean is undertaken by small sailing vessels at very low rates, and the system was designed with a view to accommodating this class of traffic as well as the regular steam freighters up to about 8000 tons. The four swinging cranes for ore and limestone have about the same handling capacity as the coal unloaders and operate similarly. They also dump to hoppers.

From the pier to the smelting works there is a double aerial tramway, which comes out on each side of the pier, as shown in Fig. 3, to the loading hoppers. Here the carriages are uncoupled from the traction cables, turned in on a switch and their buckets filled. Given a push to the main line, they automatically couple again, passing around a loop to begin their return journey. One of the lines carries the ore and flux material and the other the coal. The tracks consist of overhead rails for the length of the pier and steel wire cable the rest of the way. Fig. 4 is a bird's-eye view of the company's property.

The iron ore, limestone and coal are conveyed to stock piles, where the buckets automatically discharge at the positions fixed by the trips, which are the only thing that require attention from an operative, all of the curves being taken by the carriages without their being loosened from the traction cable. Hence, only one intelligent laborer is required to oversee the system. A noteworthy feature of it is the very light construction feasible in moving light loads under conditions of practically continuous traffic, instead of heavy loads intermittently. If the pier had been adapted to steam or electric haulage, it would have necessitated much heavier construction.

There are 220 coke ovens, of 3 to 4 tons (metric, 2040.6 lb.) each, the most modern of which are of the Koppers regenerative type. They are charged either with loose or compressed coal, which has been crushed and prepared in the usual way, and the daily production is about 700 tons

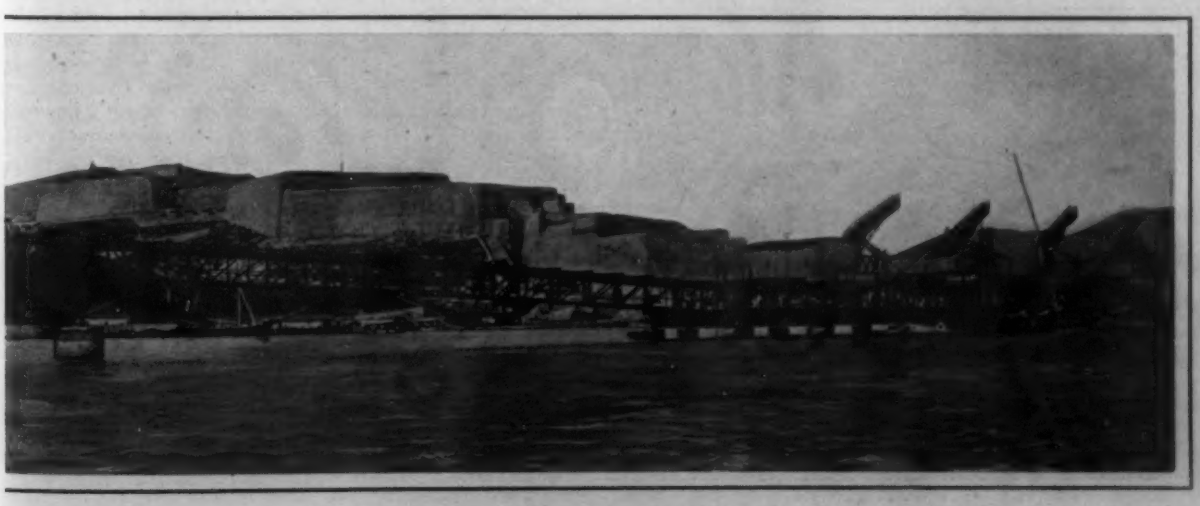


Fig. 3—Unloading Pier at Portoferraio

or upward, which is more than that required by the furnaces. Some of the excess is sold, but it is ordinarily stored for the periods when the ovens are not being used. In the by-products plant, tar and sulphate of ammonia are recovered, principally. Gas not used for regenerative heating is applied to raising steam in boilers.

Three blast-furnace units are in service, with a combined capacity of about 540 tons daily. Each furnace has an electric charging hoist. and the practice in general is along well-known European standards, with recent improvements. There is also a steel plant of corresponding capacity, which includes converters and a small electric refining furnace modeled along the lines of the Stassano type.

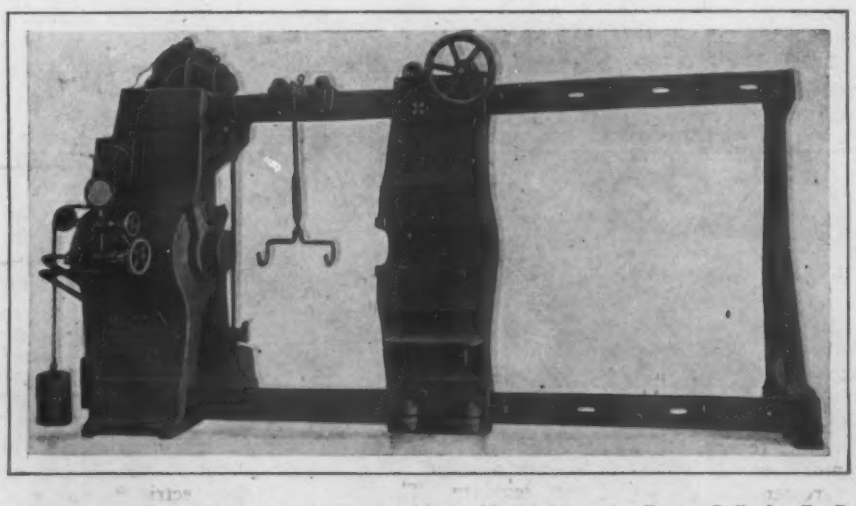
The electric power plant consists of gas-engine driven units, all operated on blast-furnace gas. The Maschinenfabrik Augsburg-Nürnberg, Nuremberg, Germany, supplied this company with three 4-cycle double-acting engines of 5040 hp. aggregate capacity to drive alternating-current generaotrs and two, of 770 and 520 hp., for direct-current generators; but the writer only noted one 1280 hp. and one 770 hp. machine here, the others probably being at another property in which the Elba Company is interested at Piombino on the mainland. There are also Cockerill, Klein and Palmer gas engines, including blowers, having an aggregate capacity of 5200 hp. and reserve steam units of about half the gas engine capacity.

In addition to steel, the company produces some calcium carbide in electric furnaces and also ships Elba ore to furnaces at Piombino and Bagnoli, where the new works of the Societa Siderurgica di Savona, of Naples, are located. It has control of practically the entire output of the Elba iron mines, which produced, in 1910, 533,000 tons, or over 96 per cent. of the quantity credited to all Italy, and during 1911 nearly the same. The production, as the writer understood, is limited to about these figures, annually, by a governmental regulation which seeks to prevent exhaustion of the Elba supplies.

The company's transportation system is not confined to the aerial tramways mentioned above, but includes considerable industrial railway trackage, with locomotives, dump cars, shops, etc.; yet the systems described are those of the greatest practical interest to a visitor. The unloading pier and aerial lines were all designed, fabricated and erected by Adolf Bleichert & Co., London and Leipsic, whose American licensee is the Trenton Iron Works, Trenton, N. J.

Motor-Driven Wheel Press

A motor-driven hydraulic wheel press for which the special claims of convenience in operation and simplicity in construction are made has been placed on the market by E. R. Caldwell & Co., Bradford, Pa. Although designed primarily for car and locomotive work, it can also be used in coal and lumber yards, mines, machine shops, foundries, cement plants and shipyards and by dock companies and other firms using a considerable amount of machinery or rolling stock.



An Hydraulic Wheel Press with the Driving Motor Mounted on the Frame Built by E. R. Caldwell & Co., Bradford, Pa.

For convenience in handling heavy work such as locomotive driving wheels and irregularly shaped work that cannot be rolled to or from the press, the upper horizontal parallel bar is not located in the same vertical plane as the lower one, but is set slightly back of it to permit handling the work with an overhead crane. The plungers, which are not shown in the accompanying engraving, are operated by eccentrics on the back shaft, which is driven by a Westinghouse 7½-hp. direct-current motor through cut gears having a ratio of 3½ to 1. They operate without vibration and are practically noiseless.

As soon as the pressure is shut off from the pumps the ram is drawn back automatically. An extra valve to connect with the city water supply is furnished when it is possible to have such a connection and by opening this valve before applying the pressure from the pump, the steel-faced ram is moved out against the work more rapidly than would be possible with the pump. As soon as the ram bears against the work this valve is closed, the pump valve opened and the plungers started. The press is equipped with both high and low pressure pumps, the cylinders of which are cast from a special semi-steel mixture which it is emphasized gives great strength and at the same time renders them proof against leakage. A safety valve to prevent overloading also forms a part of the pump equipment. The low pressure pump operates the ram up to a certain pressure with a greater speed than the high pressure one and consequently increases the amount of work over that which could be handled by using the high pressure pump alone. This low pressure cylinder is arranged with a relief valve so that the pump works until a pressure of about 50 tons is being exerted. At this time it is automatically cut out of service and the pressing operation is continued at a slower rate with the high pressure pump. This automatic device, it is pointed out, is especially efficient in forcing work off. The low pressure pump works until its limit of 50 tons is reached, when the high pressure pump begins to operate and exerts pressure until the work is forced off far enough to enable it to be finished with a lower pressure and consequently with greater speed.

The Still By-Product Coke Ovens and Benzol Plant.—Bagley, Mills & Co., 92 Victoria street, London, and 50 Church street, New York, agents for Carl Still, Recklinghausen, Germany, have booked an order for a large Still benzol recovery and refining plant in England. The two batteries of Still by-product coke ovens at Heaths' Birchenwood mines in England are nearing completion, and the benzol plant at the same properties has recently been started. The Still interests have some important contracts under way for by-product ovens and benzol plants for European iron and coal companies.

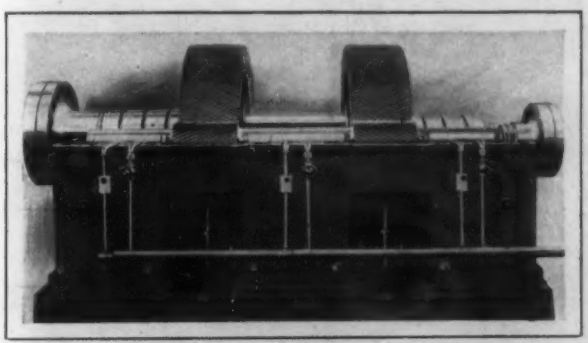
The test of a 300-hp. peat-gas producer and gas engine, built by the Goerlitzer Maschinenbauanstalt and installed in the exhibition in Posen in 1911, was reported recently in the Zeitschrift des Vereines Deutscher Ingenieure. The peat consumption per kilowatt hour at the switchboard was about 2 kg. (4.4 lb.). The peat was notably low in moisture, the analysis being carbon, 41.65 per cent.; hydrogen, 4.1 per cent.; oxygen, 26.35 per cent.; ash, 4.1 per cent.; water, 23.8 per cent. The engine was double acting with a cylinder diameter of 25½ in. and a stroke of 29½ in. and a speed of 150 r.p.m. The mean heating value of the peat was given as about 7100 B.t.u. per pound.

The Naulty Smelting & Refining Company, 2616 Martha street, Philadelphia, Pa., has been adjudged a bankrupt in the United States District Court in that city.

A Large Reducing Gear

Recently a very large helical reduction gear has been built by the DeLaval Steam Turbine Company, Trenton, N. J. While in general construction this gear follows the one which was illustrated in *The Iron Age*, April 13, 1911, it is nevertheless of interest on account of the power which it transmits as well as the fact that it is built with three pinion bearings instead of two. The speed ratio of this gear is 6 to 1, 3600 to 600 r.p.m., and the power transmitted is 2000 hp. This gear is the culmination of an experience extending over more than 25 years in the production of high speed double helical gears for use with turbines. The results of the study of this problem and the experience gained are briefly that the gear must be of the helical type so that the transmission of pressure from one tooth to another may be uniform and without shock or vibration, the angle of the teeth should be such that several teeth are always in contact, a true involute tooth should be used to secure line contact with each tooth as long as it is in mesh, the gear should be of the twin or double pattern that is with two sets of spiral teeth inclined in opposite directions to neutralize end thrust and eliminate axial pressure upon the bearings, the unit pressure must be reduced to a point where the film of oil will not be squeezed out from between the teeth, the gear and the pinion must be rigidly supported in the same plane and at the proper distance between the centers, and finally a gear and its pinion must be cut so that they will have the correct tooth contours, pitch and angle so that the pressure on the teeth may be uniform.

The speed reduction gearing comprises a large gear which is coupled to the shaft of the driven machine and



A Three Bearing Helical 6 to 1 Speed Reducing Gear Transmitting 2000 Hp. at a Speed of 3600 R.P.M. Built by the De Laval Steam Turbine Company, Trenton, N. J.

the pinion which is coupled to the shaft of the turbine or driving machine, the two being held accurately and rigidly at the proper center distance and in alignment by a heavy cast-iron gear case. The main gear consists of a rigid cast-iron center or hub upon which two seamless rolled steel bands are shrunk and in which the teeth are cut. These bands are of a special grade of steel and the center or hub, which is shaped so as to be free from distortion caused by strains or rapid temperature changes, is mounted on the gear shaft by a taper fit and key. An open-hearth steel forging is used for the shaft which is ground on all surfaces, and after the complete assembling of the gear bands, center and shaft the whole is tested for static and running balance, after which the teeth are cut. The pinion is cut directly on the pinion shaft, which is of a special nickel forging, and all its surfaces with the exception of those of the teeth are ground.

The bearings supporting the gear and the pinion are cast-iron shells thoroughly tinned before the babbitt metal lining is cast and all of the parts are interchangeable. The direction of rotation is such that the pressure on the pinion bearings is always in a downward direction and at the same time the pressure of the pinion tends to lift the gear, the weight of which is slightly greater than the upward pressure, thus reducing the load on the bearings. The oiling system for the gear and the pinion provides a spray of oil projected on the gears at the line of contact on the entering side, and the pinion bearings are oiled from a gravity system, a sight feed oil glass being provided for each bearing. After passing through the pinion bearings the oil flows into the reservoir of the ring oiled gear bearings, an arrangement which replenishes the supply and insures the proper level of oil. The gear case and its cover as well as all the bearing cups have recessed oil grooves to prevent the oil from creeping through the joints to the outside of the case. The overflow oil is drained to a common receptacle and returned through a strainer to a positive gear type pump driven by worm gearing from either the main gear shaft or the shaft of the driving machine. In the case of turbine-driven machines a single pump supplies both turbine and the gear.

The gear case, which is a single casting, is made heavy so that it may be entirely free from springing, distortion or vibration and the gear and pinion will be kept rigidly in alignment. The bearings are ground to limit gauges and their seats in the case are carefully scraped to correspond. All parts of the reduction gears that can be disassembled for inspection are furnished with taper dowel pins to insure alignment in reassembling. The gear case is supported on a heavy bed plate of the box type arranged for connection to the bed plates of both the driving and the driven machines, its weight and strength tending to prevent any distortion or disalignment of the working parts. For connecting the pinions of the turbine shaft and the shaft of the gear to that of driven machine flexible couplings consisting of two forged steel disks ground and polished on all surfaces are employed. The driving half is fitted with a number of rigid studs which project into corresponding holes in the driven half of the coupling and the torque is transmitted through steel-lined rubber bushings which compensate for any defect in alignment and supply the necessary flexibility to prevent strains on the shaft or the bearings. The couplings can be disconnected quickly, after which one shaft may be removed without disturbing the other. Each half coupling is mounted on a taper, being prevented from turning by Woodruff keys that are secured in place by lock nuts.

Power Proposed from a Sewer

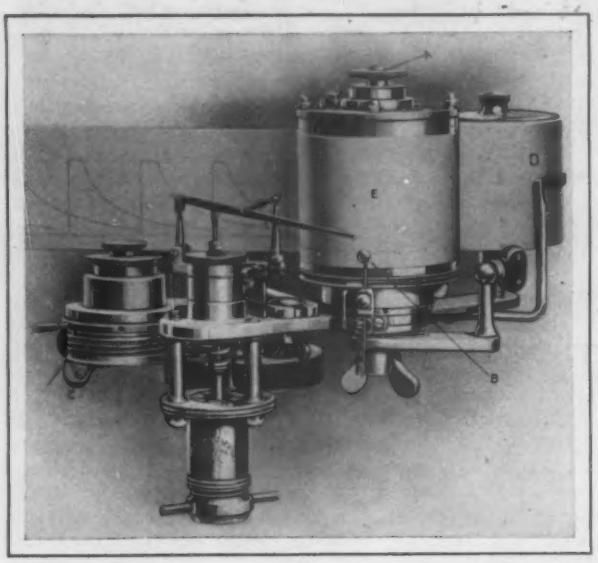
A plan is being developed by the municipalities of the Niagara frontier for the building of a trunk sewer, or sewerage tunnel, between Buffalo and Lewiston, to take care of the sewage of the cities in that locality and at the same time produce electric power in large quantities. A joint commission, with representatives from the cities of Buffalo, Lackawanna, Tonawanda, North Tonawanda, Lockport and Niagara Falls, is to be formed to prepare detailed plans to place before the New York State Conservation Commission and secure the co-operation and necessary action by that body. Chairman Van Kennan of the commission has stated that he is in favor of the proposed sewer and power development plan and considers it practicable. The flow would be rapid in the deep underground tunnel sewer, as there is a fall of 250 ft. between Buffalo and the escarpment at Lewiston, and engineers figure that 250,000 hp. or more could be developed. The project includes a sewage disposal plant at the foot of the escarpment to treat the sewage and manufacture it into fertilizer.

Tests of a Hilger revolving grate gas producer with lignite coal were reported briefly in the translations from foreign sources printed in the Journal of the American Society of Mechanical Engineers. With the fuel containing 52.7 per cent. moisture and about 60 per cent. culm, 25.5 cu. ft. of gas were obtained per pound of fuel, with the gas showing about 125 B.t.u. per cubic foot. The gas was found to be rich in moisture and tar but comparatively poor in sulphur. The efficiency of the producer is claimed to be 80 per cent.

Dependence on automatic fire prevention apparatus was recently justified in an experience with a fire in a New York building. The operator of an electric flatiron neglected to turn off the current, leaving the iron resting on an ironing board. At 7:27, about two hours after the building was vacated, an alarm was automatically sent to a fire station installed in the building, and three minutes later when the firemen arrived the fire had been extinguished by the automatic sprinklers.

Continuous Card Indicator

To give an accurate record of the performance of an engine by taking an uninterrupted set of indicator cards, the Trill Indicator Company, Corry, Pa., has placed on the market a continuous card indicator. Among the advantages claimed for this new device are that a record of each stroke is secured instead of one out of possibly every 25, and the trouble and time incident to putting



A New Type of Indicator for Taking Continuous Cards Made by the Trill Indicator Company, Corry, Pa.

on a new card are done away with. One of the special fields for this indicator is for use on gas engines where the conditions from stroke to stroke vary considerably more than they do in steam engine practice. By taking continuous cards it is possible to see just how the mixing valves work and if the proper mixture of gas and air is furnished for each stroke. It is pointed out that it is also possible to learn whether backfiring or preignition occur or if the timing device gives absolutely accurate ignition for all conditions of load and speed.

This indicator is attached to the engine in the same way as an ordinary one and it is equipped with a reducing mechanism which enables the same indicator to be used on different engines having strokes ranging from 6 to 72 in. In operation after the indicator has been placed on the engine a roll of paper is placed on the smaller drum D and the free end is fitted around the larger drum E on which the diagram is traced. To do away with the necessity of tracing a separate atmospheric line on every card a second pencil, B, is provided which is set at the atmospheric line given by the moving one. After this has been done a continuous atmospheric line will be traced for the total length of the indicator card. The card is then pulled out to its full length and held there by the detent C, after which the cord hook is attached to some part of the crosshead from which the driving motion is obtained. By releasing the detent C the indicator is started. If a continuous card is desired the nut A is screwed down which sets the paper translating device into action and a series of cards will be traced as shown in the accompanying engraving. This strip can be torn off at any point and the cards examined and integrated. A spring and catch hold the tracing pencil against the drum when taking continuous cards and insure an absolutely uniform pressure on the pencil point. If a continuous card is not desired the nut A can be loosened while one card is being traced and then tightened while the engine makes two revolutions, which brings an entirely new sheet of paper on the tracing cylinder, and another complete card can be traced by loosening the nut A. In this way separate diagrams can be taken whenever desired and the trouble incident to placing new cards on the indicator eliminated.

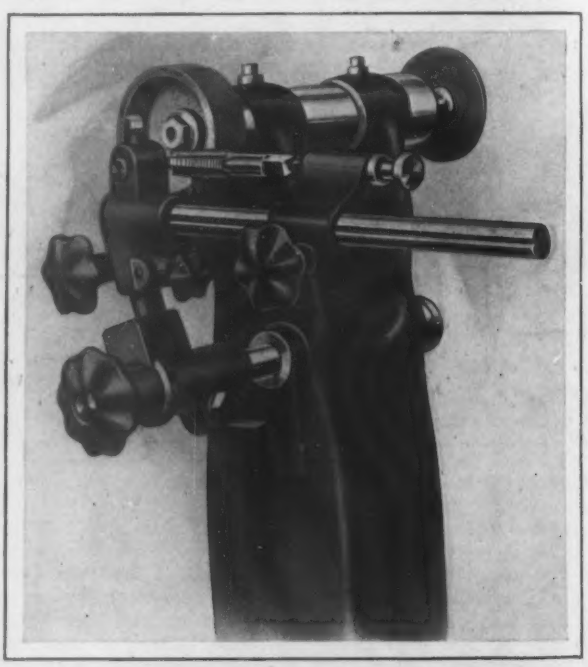
The equipment of each indicator includes two cylinders, one having an effective area of ½ sq. in. for low pressure work and the other having an effective area of ¼ sq. in. for high pressure work such as is met with in gas engines. The spring is of the outside type and is entirely outside of the cylinder, thus being removed from high temperature steam or the cutting action due to wire drawing. Six of these springs are furnished with each indicator.

The Little Giant Tap Grinding Machine

A new tap grinding machine which is known as the Little Giant has been put on the market by the Wells Brothers Company, Greenfield, Mass., to meet the economic necessity of keeping taps sharp and properly ground. In this way the disadvantages of a dull tap which are dragging and cutting, tearing out the material and liable to break easily when clogged with chips are done away with, while at the same time as the edges of the tap are always kept sharp the power consumed is kept at a reasonable figure.

The machine consists of a swiveled adjustable arm and cup wheel mounted on the base with a self-contained countershaft. The tap is held between centers and is swung past the face of the cup wheel to sharpen it. It is kept in the proper position by an adjustable spring finger which regulates the angle or clearance to be ground. The fixture may be swiveled to get any length or degree of taper.

The machine regularly takes taps 12 in. in length, while a special arm accommodates tools 3 in. longer. The spin-



The Little Giant Grinding Machine for Taps Made by the Wells Brothers Company, Greenfield, Mass.

dle runs in phosphor bronze boxes and is adjustable for wear. The driving pulley is 2½ in. in diameter and the speed recommended is 4000 r.p.m. Either belt or motor drive can be employed and the shipping weight is approximately 235 lb.

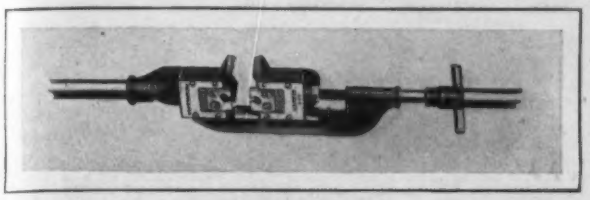
Steel Dipper Teeth Patents

The Taylor Iron & Steel Company, High Bridge, N. J., announces that it has acquired license under patents 711,992 and 981,666 to manufacture and sell dipper teeth generally known as the Mason tooth. The company will continue to manufacture and sell Panama and Panama reversible point teeth under its own patents.

The Edgar Allen American Manganese Steel Company, Chicago, announces that it has acquired license under patent 783,764, reissue 12,608, 887,984, 888,047, 923,159 and 851,093, claim 10, to manufacture and sell dipper teeth known as Panama and Panama reversible point teeth. This company will continue to manufacture and sell the Mason tooth under its own patents.

The Beaver Square End Pipe Cutter

A new type of hand pipe cutter has been brought out by the Borden Company, Warren, Ohio. The principal feature of this tool is a special form of cutter which cuts the pipe rather than squeezes it off. This arrangement, it



The Beaver Square End Pipe Cutter Manufactured by the Borden Company, Warren, Ohio.

is claimed, severs a pipe perfectly square and clean and leaves no burr to file off or ream out so that the full internal diameter is preserved.

The knives used in this tool are similar to a carpenter's plane and sever the pipe exactly as a lathe tool would instead of squeezing it off. They are fed into the pipe automatically and as they revolve they cut a narrow groove around the pipe. In operation the machine is turned by two handles just the same as a die stock. Several sizes are built, the No. 5, which is the one illustrated, cutting pipe ranging from ½ to 2 in.

A Steel Mill Industrial Railway

A marked saving in the number of men required to handle material has been effected by the Superior Steel Company in its mills at Carnegie, Pa., by the installation of an industrial railway designed and built by the Orenstein-Arthur Koppel Company, Machesney Building, Pittsburgh, Pa. This system employs electric locomotives, cars, etc, the power being secured from an overhead trolley wire.

The equipment supplied includes 36-in. gauge portable tracks made of 30-lb. rails mounted on steel ties, double truck cars measuring 12 x 4 ft. and having a capacity of 12 tons, single truck platform cars having the same capacity and being 4 ft. shorter, 4-ton electric locomotives 9 ft. long and 54 in. wide mounted on two axles, each being driven by a 20-hp. direct-current, 220-volt series motor. Approximately 7000 ft. of track with the necessary switches and crossings was furnished and the rolling stock includes 72 double truck and 24 single truck cars and 3 locomotives.

The railway reaches practically all points of the plant, the material being loaded directly on the cars from the different rolls and machines and transferred by the locomotive to the building where the next operation is to be performed on the material. This consists principally of strips and plates from 8 to 16 ft. in length and as a general rule the cars are loaded to their full capacity. As the system was installed in the older part of the plant after it was built it was necessary to make very sharp curves in the track to enter the buildings and clear the different machines. For this reason special construction of the locomotives, draw bars and cars was necessary to enable them to run around these curves, but no difficulty was caused in operation because of this fact. In the newer portion of the plant it was possible to arrange the doors and machinery so that curves of longer radius could be used which, of course, improved the operating conditions.

The trains as a rule consist as is shown in the accompanying engraving of one locomotive and two cars. As will be also noticed, from an inspection of this engraving, the locomotives are constructed so that the motorman sits in the center and is high enough to be able to see in either direction. The motors are arranged for either series or parallel operation, thus giving a speed suitable for running around the curves and also for the tangent track. The trolley wire is located from 10 to 12 ft. above the ground outside of the buildings and from 7 to 8 ft. inside them. Span wire construction is employed outside of the buildings and bracket or mine hangers are used inside. Ground return is used throughout and all of the rails are bonded.

Pacific Coast Imports of Pig Iron and Coke

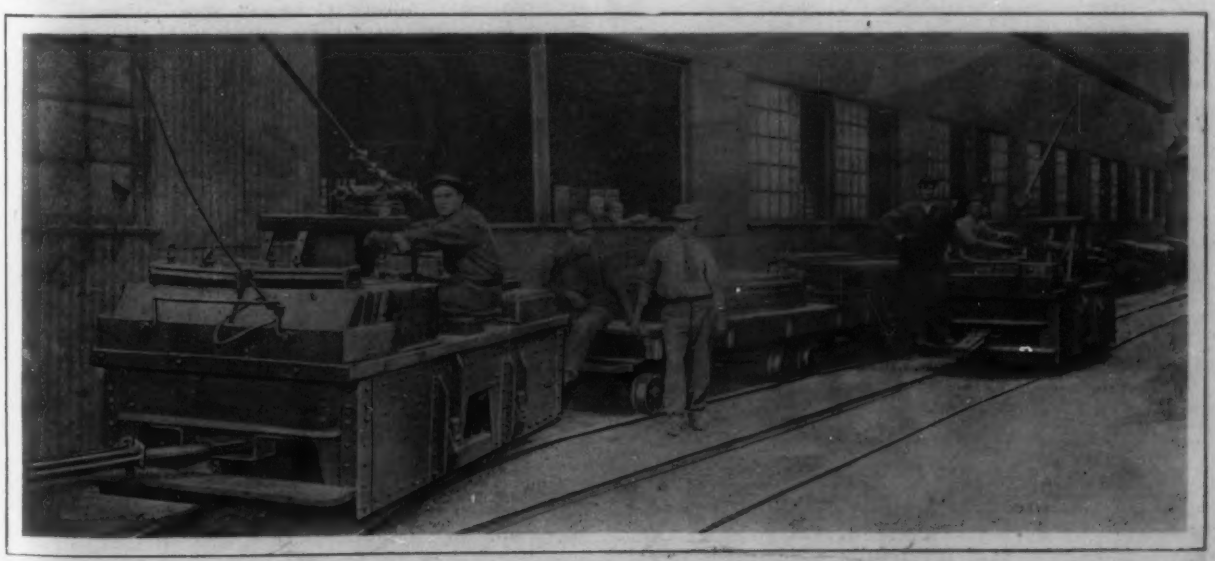
Complying with a request that has come to *The Iron Age*, we present below a statement of imports of pig iron and coke at Pacific Coast ports of the United States in the calendar year 1911. We are indebted for the figures to O. P. Austin, chief of the Bureau of Statistics, Department of Commerce and Labor.

Imports of Pig Iron and Coke into the Pacific Coast ports of the United States in the Year Ending December 31, 1911. Gross Tons:

	Coke		Pig Iron	
Customs Districts	Tons	Dollars	Tons	Dollars
Hawaii	983	3,521	2,553	38,929
Los Angeles	3,854	13,603	1,689	22,342
Portland	4,459	15,728	6,105	84,268
Puget Sound	935	3,295	9,156	119,949
San Francisco	49,444	168,786	13,340	195,717
Total	59,675	204,933	32,843	461,205

A considerable part of the pig iron imported came from China. Some of it was basic iron for the Western Steel Corporation, but a larger portion was foundry iron, chiefly marketed through San Francisco.

The Otis Steel Company, Cleveland, Ohio, will install a 2-ton Stock converter for the manufacture of small Bessemer steel castings, the license to the company covering the northern part of Ohio.



View Showing Some of the Industrial Railroad Equipment Installed at the Plant of the Superior Steel Company by the Orenstein-Arthur Koppel Company, Pittsburgh, Pa.

International Iron and Steel Specifications

Suggestions on Behalf of the American Representatives on the International Sub-Committee—The Rail Discussion at the Coming Congress

In *The Iron Age* of May 30, page 1354, an account was given of the meeting held in London May 8 by the members of sub-committee Ia of the International Association for Testing Materials. The question discussed was the proposal for international specifications for iron and steel and the resolutions passed expressed the opinion that the time is not ripe for any recommendations for international iron and steel specifications by the Sixth Congress of the International Association which will be held in New York in September next and that any action by the forthcoming congress is undesirable. This resolution will be presented to the forthcoming congress.

While W. A. Bostwick and William R. Webster, the American members of International Sub-Committee Ia, were unable to attend the London meeting of last month their views were presented to that meeting in the form of a report which they had published in Vol. XI, 1911, of the Proceedings of the American Society for Testing Materials. This report was prepared subsequent to the 1911 convention of the American Society for Testing Materials at Atlantic City. It was referred to at some length by Dr. H. M. Howe, retiring president, in his address at the New York meeting of the Society held March 28 and 29 of this year. A synopsis of Dr. Howe's remarks appeared in connection with the report of that meeting, given in *The Iron Age* of April 4. As the report of Messrs. Bostwick and Webster has not been published, except in the proceedings as above indicated, and since it outlines a list of subjects which should be discussed in connection with rail specifications and presents the view of this important question that has taken shape from the discussion of it in the United States, we present it in full below:

The Original Action at Copenhagen

The report of International Sub-Committee Ia was made a prominent feature of the proceedings at the Copenhagen Congress held in 1909, inasmuch as this report recommended what was virtually a new departure of great significance and far-reaching importance in the policy of the International Association. The recommendations in this report were formally approved in principle at the Congress and the Sub-Committee was requested to continue its "valuable labors in co-operation with the National societies, and if possible to lay before the Sixth Congress definite proposals as to the basis of International specifications for iron and steel." A full account of this subject is contained in the report of Committee A-1 on Standard Specifications for Steel, presented at the 13th annual meeting of the American Society for Testing Materials. The original instructions to Sub-Committee Ia are as follows:

> Committee Ia shall, on the basis of specifications recognized by the National Testing Associations of Germany, England and the United States of North America, endeavor to establish uniform international specifications for the delivery of materials to countries that do not produce iron in any considerable quantities.

It was decided to consider for each class of material only one standard specification from each country, prepared by representatives of the manufacturing interests and an equal number of representatives from the railroad companies or of consumers' interests. The specifications decided on were as follows:

German specifications recognized by the Deutscher Verband für die Materialprüfungen der Technik.

English specifications published by the Engineering Standards Committee, London.

American specifications adopted by the American Society for Testing Materials.

Reason for International Specifications

Since the Copenhagen Congress the plan proposed by Sub-Committee Ia has received much attention in interested circles, both in this country and abroad. Nevertheless, it appears that the real meaning and purpose of the plan is not yet fully understood, as evidenced, for example, by recent inquiries on the part of two prominent members of the Association who were present at the Congress and participated in the discussion of the subject at that time. One of these, a prominent steel manufacturer of Belgium, asked what modifications would be required in the specifications of that country for home orders, in order that they might agree with the proposed international specifications. He was very much relieved to learn that there was no thought of changing the requirements of the specifications of any country for home orders, the idea being merely to simplify the specification for export orders, the individual countries being left entrely free in their own internal matters.

The other asked, "Why does the International Association for Testing Materials want international specifications?" The reply was, "To increase international commerce on lines fair to all parties concerned, and to enable engineers to purchase materials on specifications that are consistent with the best practice today." He replied, "This opens up very important commercial questions that should be referred to the steel manufacturers." We thoroughly agree with this and steps have been taken to obtain the views of the English, German, Belgian, French and American steel manufacturers for the information of the Sub-Committee and the Association. It seems desirable, therefore, that a brief report of progress should be made to our members, both with a view of giving them a general idea of present conditions and of enlisting their active co-operation. The time has passed when any specification or set of specifications with clauses calling for low phosphorus requirements based on favorable ore conditions, would tend to confine orders to any one locality or country, inasmuch as the basic and duplex processes have equalized matters in this respect so that there is now no commercial advantage to be gained by insisting on specifications of this kind. Such matters can now be settled by the Committee on their intrinsic merits, without reference to their commercial bearing.

Action of the Berne Railroad Congress

The summaries of the specifications printed in the Proceedings of the Copenhagen Congress in French, German and English have been very helpful to the Sub-Committee in the conduct of its work, but these summaries are of little or no value to an engineer who may desire to purchase rails or other materials, for he must have the specifications printed in full in his own language before he can decide intelligently upon their adoption. We therefore recommend that all of these tabulated specifications be printed in full in French, German, English and Spanish for the information of our members and of the members of the International Railway Congress Association in view of the following resolutions which were passed at the International Railway Congress at Berne last year, showing the great interest that is taken in the work of Sub-Committee Ia:

> 1. The Congress expresses the wish to have a report at the next Congress, with the collaboration of steel manufacturers, on the state and progress of the work of the International Association for Testing Materials dealing with the comparison of the specifications for iron and steel.
>
> 2. The Congress further resolves, in connection with the conclusions on the question of steel and special steel, that it is desirable to take into consideration the specifications drawn up by the International Association for Testing Materials for the inspection of steel materials.

The Association in each country should attend to and pay for the translation, printing and distribution of its own specifications.

Structural Steel to Be Taken Up First

It is believed that real progress will be best insured by concentrating efforts on the following specifications which have already been summarized in parallel columns, and that it would be unwise to attempt to cover a wider field at the present time. The specifications referred to include the following products:

Structural Steel for Ships.—We would propose that the British Engineering Standards Committee's specifications for Structural Steel for Ship Building be adopted as international specifications. These specifications are the same as Lloyds specifications which are widely used.* We believe, however, that chemical requirements should be added and we would propose the adoption of the chemical requirements of the specifications of the American Society for Testing Materials for Structural Steel for Ships. It is not considered necessary at this date to enter upon an extended argument on the desirability of chemical requirements for an important material like ship steel, and it is to be expected that the above recommendations will be complied with.

Structural Steel for Bridges.—We also recommend that the specifications of the American Society for Testing Materials for Structural Steel for Bridges shall be adopted as international specifications. These specifications are practically the same as those of the American Railway Engineering Association, an organization of about 1000 members, affiliated with and operating under instructions, with regard to rail tests, rail specifications, etc., from the Committee on Maintenance of the American Railway Association, representing over 260,000 miles of road. The latter is, in turn, affiliated with the International Railway Congress Association, whose membership embraces all the leading railways of the world. This is an important consideration, since the railways are the chief users of specifications for bridge materials.

Structural Steel for Buildings.—We further recommend for adoption the specifications of the American Society for Testing Materials for Structural Steel for Buildings. These are in many respects the same as the specifications for Structural Steel for Bridges, but permit the use of Bessemer steel and a higher phosphorus limit.

Rails to Be Taken Up by the Sixth Congress

In the matter of rail and splice bar specifications, it would be premature to recommend any international specifications, and it is doubtful if a single specification can be recommended owing to the different methods of manufacture and the different requirements of the railroads. It is therefore recommended that a discussion of rail specifications be made a matter of business at the next Congress and that a full session be devoted to this subject.

It is further recommended that until one or more international specifications for rails and splice bars are adopted all those interested in the subject of rails should request the manufacturers of the different countries to work to the specifications of the National Societies of England, Germany and America indiscriminately, according to the individual preference of the engineer, as they are called upon by the purchasers of rails. This will give valuable information to the committees on the requirements of these different specifications, and is in accordance with the course outlined in one of the recommendations in the report of Sub-Committee Ia at the Copenhagen Congress. This recommendation is as follows:

> The Sub-Committee recommends the Commission to confer with the three associations referred to above and keep them advised of the progress made, or suggestions offered, on modifications to bring the specifications more into line; that they also confer with the manufacturers direct, or through the Association, to induce them to roll trial orders of material under the conditions of the specifications of other countries, in order to find out how far these conditions can be introduced for export orders.
>
> We further recommend that a two days meeting of the Sub-Committee be held in England in May, 1912, immediately following the meeting of the Iron and Steel Institute, and that one session be conducted as a joint meeting with the members of the Standards Committee and other engineers or manufacturers, interested in the subject, who may be invited to attend.

To this report is added a list of subjects which we think should be discussed in connection with rail specifications. We would ask that additions to this list be made by the other members of the Committee.

Shou'd this general plan meet with the approval of the Chairman and members of Sub-Committee Ia, we would ask that a bulletin be issued this fall giving information to all of our members as to the course that the Sub-Committee proposes to follow, with a view of creating more general interest in the subject and securing co-operation in the widest possible circles.

Standardizing of Form and Size

As closely related to the foregoing we desire to direct attention to the great field of usefulness open to the International Association if it would concern itself not only with the establishment of international specifications for materials, but also with international standards affecting the form and size of important articles of manufacture. It is interesting to recall in that connection that the British engineering Standards Committee was originally created to bring about the latter form of standardization rather than the standardization of materials. As the work of that committee progressed it was recognized, however, that the two questions were, to a large degree, inseparable, and the efforts of the Engineering Standards Committee, as now directed, include the standardization of materials as well as standardization of shape and form. It is to be hoped that the American Society for Testing Materials, which has thus far limited its activity mainly to the standardization of specifications and methods of test, will also give attention in increasing measure to the standardization of shape; and that the influence of the International Association will make itself felt along these broad and inclusive lines, with a view to the ultimate establishment of International standards.

Respectfully submitted,
W. A. Bostwick,
Wm. R. Webster,
American Members of International Sub-Committee Ia.

Rails.—Subjects Suggested for Discussion at the Coming Congress.

1. General points of difference in the three specifications under consideration.
2. What general conditions can be embodied in a specification irrespective of methods of manufacture: (a) Physical tests. (b) Chemical requirements.
3. How should the above requirements be modified for—Basic Bessemer rails, Acid Bessemer rails, Basic Open-Hearth rails, Acid Open-Hearth rails, Duplex Process rails.
4. Should tension tests be required, and if so what limits in tensile strength and what elongation specified.
5. Dead load tests for different weights and sections of rails.
6. Height of drop for different weights and sections of rails in connection with carbon content and ultimate strength specified.
7. Discuss with 6, the variations in requirements in present specifications: (a) Weight of tup (2,000 lb. and 2,400 lb.), (b) Distance between supports (3 ft., 3 ft. 6 in., 4 ft.). (c) Length of rails tested (6 ft. and 30 ft.).
8. The standard drop testing machine in general use in the United States of America, adopted by the American Society for Testing Materials, and American Railway Engineering Association. A description of this machine has been published in Vol. II, No. 4, of the Proceedings of the International Association for Testing Materials, issued May 20, 1911. A full description of the machines and details of tests in use in other countries is asked in order that we may arrive at a thorough understanding of the conditions under which tests are made, so as to decide on a standard requirement, or whether to make allowances, taking into account the varying conditions under which such tests are made.

Trials of Titanium Alloy and Other Rails

Data have been given out concerning trials of plain Bessemer, plain open hearth and titanium open hearth rails from various rail mills. The rails were laid by the Boston & Maine Railroad in October, 1910. After being in service eleven months the ratio of wear was found to be as follows:

	East bound track, percent of wear	West bound track, percent of wear
Plain Bessemer	2.50	2.33
Plain open hearth, Mill A	2.32	1.50
Plain open hearth, Mill B	2.14	1.39
Plain open hearth, Mill C	1.72	1.95
Titanium open hearth (0.15 Ti.)	1.32	1.12
Titanium open hearth (0.20 Ti.)	1.00	1.00

The works of the National Tube Company at Syracuse, N. Y., have been started up after an idleness of about one year. The output of this plant is boiler tubes exclusively and its capacity is about 2000 tons a year.

*The Engineering Standards Committee in Report No. 13, revised in September, 1910, prescribes the following requirements for structural steel for ship building, which are exactly the same as those of Lloyds Registry, as given in July, 1909.

Plates, ultimate strength, 28 to 32 tons = 62,720 to 71,680 lb. per sq. in.

Plates, for cold flanging, 26 to 30 tons = 58,240 to 67,200 lb. per sq. in.

Plates, ½ in. thick and over, 20 per cent. in 8 in.

Plates, under ½ in. 16 per cent. in 8 in.

Shapes, ultimate strength, 28 to 33 tons = 62,720 to 73,920 lb. per sq. in. Elongation the same as for plates.

Machinery Exhibits at Atlantic City

Record-Breaking Display at the Recent Railroad Conventions

As usual the exhibits of metal working machinery and railroad appliances were a noteworthy feature of the conventions of the Master Car Builders' and American Railway Master Mechanics' associations which were held at Atlantic City, N. J., from June 12 to June 19. The exposition was without a doubt the largest and most complete at any convention held in this country. The exhibits occupied a total space of 83,507 sq. ft. on the Million Dollar steel pier. There were 262 exhibitors this year, as compared with 245 last year and 228 the year previous, and the floor space for 1911 and 1910 was 76,100 and 71,453 sq. ft. respectively. The increased space this year was obtained by an extension of 4,860 sq. ft. on Machinery Hall, and by adding a new steel and wood arched structure to the Hotel Men's Annex, which rendered 2,537 sq. ft. more available, and increased its total area to 11,283 sq. ft. Practically all of the machines were equipped with electric motor drive, and were in operation, a special electric generating plant having been installed on the pier. Motion pictures and transparencies were also features. The comprehensiveness and variety of the mechanical equipment and appliances shown is apparent from the following partial list of exhibits:

Ajax Mfg. Company, Cleveland, Ohio.—Ajax scrap reclaiming rolls and forgings produced on Ajax forging machines.

American Brake Shoe & Foundry Company, Mahwah, N. J.—Brake shoes for locomotives, passenger, freight and electric railway equipment and brake heads and keys.

American Infusion Steel Process Company, New York City.—A process for converting a low-grade steel into a high-grade steel.

American Locomotive Company, New York City.—Reception booth with photographs of locomotives.

American Nut & Bolt Fastener Company, Pittsburgh, Pa.—Bartley nut and bolt fasteners and self-locking nut and bolt fasteners.

American Steel Foundries, Chicago, Ill.—Cast-steel products, cast-steel side frames and brake beams, bolster, couplers, roller side bearings, wheels, springs and miscellaneous castings.

American Tool Works Company, Cincinnati, Ohio.—Motor-driven 24-in. x 12-ft. geared head and 16-in. x 8-ft. relieving lathes, 2-ft. geared, 3-ft. sensitive and 6-ft. plain radial drilling machines, 16-in. shaping machine with universal table and vise and 24-in. shaping machine.

American Vanadium Company, Pittsburgh, Pa.—Vanadium steel, iron, brass and bronze locomotive parts, steel forgings and castings, tool steels, ores and alloys.

Anchor Packing Company, Philadelphia, Pa.—Packing and mechanical rubber goods.

Automatic Ventilator Company, New York City.—Miniature working models of the Automatic and several types of self-acting intake-and-exhaust car ventilators.

Baker Brothers, Toledo, Ohio.—1-in. x 6-in. automatic drilling machine for rapid production.

Baush Machine Tool Company, Springfield, Mass.—Hydro-pneumatic radial drill.

Best, W. N., New York City.—Oil burners, oil furnaces and oil regulating cocks.

Best Mfg. Company, Pittsburgh, Pa.—Gate valves, iron, steel and brass globe valves, flanged fittings, flanges, bends and pipe joints, flexible joints, stand pipes and Gulland stand pipe valves.

Bethlehem Steel Company, South Bethlehem, Pa.—Tool steels, Bethlehem structural steel shapes, standard high-speed steel tools developed by Taylor-White, drop forgings, steel, iron and brass castings, staybolt iron, alternating stress testing machines, Bristol critical point furnace, staybolt vibratory machine, metallographic instruments, rail sections and forged steel hydraulic jacks.

Bettendorf Axle Company, Bettendorf, Iowa.—50-ton single center sill underframe with trucks, 40-ton double center sill box car underframe, assembled truck and variable load brake truck.

Boss Nut Company, Chicago, Ill.—Nut locks.

Bowser & Co., Inc., S. F., Ft. Wayne, Ind.—Standard self-measuring oil pumps, combined tank and oil pump, paint oil outfit, power pump, automatic registering measure, automobile filling station and oil filtering and circulating apparatus.

Buckeye Steel Castings Company, Columbus, Ohio.—Complete 70-ton cast-steel truck, truck bolsters, side frames, key connected yoke, journal boxes and couplers.

Bullard Machine Tool Company, Bridgeport, Conn.—42-in. vertical turret lathe.

Cambria Steel Company, Johnstown, Pa.—Cambria special and Coffin process axles, 100 per cent. rail joints and Morrison guard rails.

Carborundum Company, Niagara Falls, N. Y.—Carborundum and Aloxite wheels, Aloxite cloth, garnet paper and carborundum safety devices.

Carnegie Steel Company, Pittsburgh, Pa.—Solid rolled steel wheels for passenger train, locomotive and freight car service, slick gear blank and cut gear for motors, bent Carnegie toughened freight car axle, vanadium steel locomotive spring, axle and test pieces, steel sheet piling, concrete reinforcement bars, nickel-plated sections of structural, rail and bar mill shapes and transparencies illustrating process of steel manufacture.

Carter Iron Company, Pittsburgh, Pa.—Chain iron, chains, staybolts, engine bolts and physical tests of the raw material.

Chicago Pneumatic Tool Company, Chicago, Ill.—Pneumatic and electric tools.

Chisholm & Moore Mfg. Company, Cleveland, Ohio.—Chain hoists and I-beam trolleys.

Crane Company, Chicago, Ill.—Locomotive safety valves, special railroad fittings, locomotive quick-opening, blow-off and cab valves, automatic stop and check valves, special valves for creosote wood preserving plants, steel valves and fittings for superheated steam, tilting steam traps, hydraulic valves, special assortment of brass globe and angle valves for railroad service and gate valves.

Crosby Steam Gage & Valve Company, Boston, Mass.—Special locomotive steam gauges, improved locomotive pop-valves, the Lanza continuous diagram appliance for indicators, fluid pressure scales for testing gauges up to 30,000 lb., hydraulic press recorder with continuous chart and air pump throttle valve.

Crucible Steel Company of America, Pittsburgh, Pa.—Steel products.

Davis Boring Tool Company, St. Louis, Mo.—Expansion boring tools.

Davis-Bournonville Company, New York City.—Oxy-acetylene welding and cutting apparatus, complete welding and cutting equipment, acetylene and oxygen generating and compressing plants.

Deforest Sheet & Tin Plate Company, Niles, Ohio—Lohmannized products and Deforest convolute reinforcement.

Detroit Lubricator Company, Detroit, Mich.—1, 2, 3, 4, 5, 6, 7 and 8 feed lubricators, 1, 2, 3 and 4 feed air cylinder lubricators, steam chest plugs, locomotive rod and guide cups, Pendry throttle valve, boiler valve, mechanical force feed oiler for motors on section cars and complete line of models of all sizes and finishes of stationary accessories.

Dieter Nut Company, New York, N. Y.—Lock nuts.

Dixon Crucible Company, Joseph, Jersey City, N. J.—Graphite products, including lubricating graphite, graphite paint, locomotive front end preparations, graphite crucibles and general railroad supplies.

Duff Mfg. Company, Pittsburgh, Pa.—Barrett track jacks and automatic lowering jacks, Duff ball bearing screw jacks and the Duff-Bethlehem forged steel hydraulic jacks.

Duntley Pneumatic Tool Company, Chicago, Ill.—Chippers, riveters and air drills.

Electric Controller & Mfg. Company, Cleveland, Ohio.—Lifting magnet, automatic motor starters, float switches and pressure gauges, automatic machine tool controllers, electric brakes, crane controllers, circuit breakers, magnetic switches and protective panels.

Fairbanks-Morse & Co., Chicago, Ill.—Gasolene section motor car.

Flannery Bolt Company, Pittsburgh, Pa.—Tate flexible staybolts and adjustable crown stays, tools for applying Tate staybolts and F. B. C. arch bar nut locks.

Foster Company, Walter H., New York City.—Hydro-pneumatic radial drilling machine.

Franklin Mfg. Company, Franklin, Pa.—Magnesia boiler lagging and coverings and cements, asbestos supplies of all natures for railroad use, Franklin asbestos lumber smoke jacks, cotton and wool waste, journal box packing, asbestos shingles and corrugated sheathing.

General Electric Company, Schenectady, N. Y.—Motors, air compressor, controllers, rheostats, breast drilling machines, steam and air flow meters, battery truck crane, ozonator, soldering irons, fans, headlights, arc lamps, 5-kw. Curtis turbine, mercury arc rectifiers, cloth and steel pinions, ammeters, railroad signal volt ammeter and cable display cabinet.

Gilbert & Barker Mfg. Company, Springfield, Mass.—Storage tanks with measuring and non-measuring pumps for lubricating and heavy paint oils, portable gasolene tanks for garages, underground storage tanks with measuring and non-measuring pumps for public and private garages, and specialties used in the handling of gasolene and oils.

Goldschmidt Thermit Company, New York City.—Thermit of various kinds and appliances, metals and alloys produced by the alumino-thermic process, specimen pipe welds and apparatus for making same, motion pictures and transparencies to show the operations done by the Thermit process.

Gould & Eberhardt, Newark, N. J.—24-in. new high power type double triple quick stroke shaping machine arranged with adjustable-speed motor with automatic electrical starting and braking device and sectional frame and inside gearing of 16-in. shaping machine, showing the interior construction.

Halcomb Steel Company, Syracuse, N. Y.—Samples of crucible and electric welded steels and specimens of chrome vanadium steel.

Harrington Son & Co., Inc., Edwin, Philadelphia, Pa.—Hand power traveling crane, geared and plain travelers on lower flange of I-beam, spur-geared hoist and improved screw hoist.

Higley Machine Company, New York City.—28-in. blade cold metal sawing machine.

Hunt Company, C. W., West New Brighton, N. Y.—Coal handling machinery, industrial railroad and train of cars, hoisting and transmission rope, models of automatic railroad, coaling station and gravity bucket conveyor, photographs of coal handling plants and machinery and motion pictures of cargo-handling cranes.

Independent Pneumatic Tool Company, Chicago, Ill.—Thor piston air drilling machine, pneumatic hammers, staybolt drivers, close-corner motors, air grinding machines, two-piece long stroke riveting hammer and electric drilling machine.

Jacobs-Shupert U. S. Fire Box Company, Coatesville, Pa.—Fire boxes, and back ends complete with straight side and O. G. types of side sheets, inside shell of fire box, throat sheets, fire box sections, stay sheets, etc., in their various stages of development and samples of special forging work.

Jenkins Brothers, New York City.—Brass, iron and steel valves of all types for power plants, railroad shops and equipment, heating and water systems, sheet packing, pump valves and other mechanical rubber goods.

Jessop & Sons, Inc., William, New York City.—Specimens of Jessop's crucible steel and various articles manufactured from it.

Johns-Manville Company, H. W., New York City.—Refrigerator and steel passenger car insulation, waterproofing and mastic samples, electrical materials, air pump packings, Vitrabestos, high and low pressure and train pipe coverings, wool felt, car and asbestos roofing, throttle and steam hammer packings, Transite asbestos shingles, smoke jack, ebony asbestos wood, ventilators, fire-resisting cements, asbestos car sill covering, friction tapes and splicing compounds, packings, gaskets, diaphragm canopy covers, locomotive laggings, indurated fiber conduit for electric wiring and Sanitor toilet seats.

Jones & Laughlin Steel Company, Pittsburgh, Pa.—Open-hearth and Bessemer rounds, flats, squares, hexagons, bars, plates, etc., sheet steel piling, power transmission machinery, cold rolled steel shafting, concrete reinforcement bars, chains, steel wire nails, tin plate, barbed wire and various wire products including screw stock, railroad spikes, light rails and connections, structural steel, beams, angles and channels.

Joyce-Cridland Company, Dayton, Ohio.—Jacks.

Landis Machine Company, Waynesboro, Pa.—1½-in. double-head motor-driven bolt cutting machine, 2-in. double-head motor-driven bolt cutting machine with lead screw, automatic die heads for turret lathes and screw machines, solid adjustable die heads for screw machines, die heads for pipe threading machines, different styles and types of dies and samples of threaded products.

Lucas Machine Tool Company, Cleveland, Ohio.—Horizontal boring, drilling and milling machine.

Lunkenheimer Company, Cincinnati, Ohio.—Regrinding globe, angle and cross valves, non-return boiler stop valves, Victor gate valves, pop valves, lubricators, stop cocks, etc.

Manning, Maxwell & Moore, Inc., New York City.—Hendey lathes, shaping and milling machines, Gridley automatic machines, Cincinnati gear cutting machines and crank planing machines, Reed engine lathes, National heading machines, Hancock locomotive inspirators, check and steam valves and hose strainers, Consolidated locomotive pop safety valves and Ashcroft steam gauges.

Midvale Steel Company, Philadelphia, Pa.—Steel wheels and driving axle.

National Lock Washer Company, Newark, N. J.—National lock washers.

National Malleable Castings Company, Cleveland, Ohio.—Couplers, brake staff mechanism and malleable iron castings.

National Tube Company, Pittsburgh, Pa.—Hot rolled locomotive tubes, superheater tubes, Kewanee unions and N. T. C. regrinding valves.

Newhall Engineering Company, George M., Philadelphia, Pa.—Photographs of wrecking, locomotive and transfer cranes, pile drivers, etc., built by Industrial Works, Bay City, Mich., and electric overhead traveling cranes built by Case Crane Company, Columbus, Ohio.

Newton Machine Tool Works, Inc., Philadelphia, Pa.—Internal cold saw cutting-off machine.

Niles-Bement-Pond Company, New York City, N. Y.—Niles new model car wheel boring machine and Pond reversing motor-driven planing machine.

Norton Company, Worcester, Mass.—Complete display of Norton grinding wheels, collection of photographs of the Norton car axle grinding machine and medical exhibit.

Norton Grinding Company, Worcester, Mass.—Car axles and wheels ground on the Norton grinding machine and grinding machines and parts equipped with protecting devices.

Oxweld Acetylene Company, Chicago, Ill.—Oxy-acetylene and oxy-hydric welding apparatus cutting metal 24 in. thick and a demonstration of the welding of a complete set of boiler tubes into the flue sheet.

Parkesburg Iron Company, Parkesburg, Pa.—Boiler tubes.

Pease Company, C. F., Chicago, Ill.—Continuous blue printing machine with automatic washing and drying machine, direct blue line equipment, blue print paper coating machine and motor-driven trimming table.

Pyrene Mfg. Company, New York, N. Y.—Fire extinguisher.

Quigley Furnace & Foundry Company, Springfield, Mass.—Drawings of the Quigley furnaces.

Reliance Electric & Engineering Company, Cleveland, Ohio.—Reliance adjustable-speed motors, Oesterlein motor-driven milling machine, direct and alternating current constant-speed motors and motor headstocks for woodworking lathes.

Richmond Staybolt Drilling Machine Mfg. Company, Richmond, Va.—Staybolt drilling machine.

Scullin-Gallagher Iron & Steel Company, St. Louis, Mo.—Six-wheel passenger car truck frame, two complete trucks showing types of truck side frames with divided journal box and double body bolster.

Sellers & Co., Inc., William, Philadelphia, Pa.—Locomotive injectors and accessories, drivers as used upon face plates and turret rest of extra high power locomotive driving and car wheel lathes and hangers, couplings and bearings for the transmission of power.

Standard Roller Bearing Company, Philadelphia, Pa.—Roller bearing car journal boxes, steel balls, journal, agricultural, motor, standard taper and thrust-roller bearings, ball thrust, grooved ball end thrust, annular ball and special anti-friction bearings.

Tabor Mfg. Company, Philadelphia, Pa.—Inserted tooth saws.

Union Spring & Mfg. Company, Pittsburgh, Pa.—Coil and elliptic springs, pressed steel box lids, steel castings, Kensington all steel journal boxes, pressed steel spring plates and cast-steel journal box.

Van Dorn & Dutton Company, Cleveland, Ohio.—Hard service portable electrically-operated drilling and reaming machines.

Vixen Tool Company, Philadelphia, Pa.—Vixen files and rail planing machine.

Warner & Swasey Company, Cleveland, Ohio.—No. 3A universal hollow hexagon turret lathe.

Wilmarth & Morman Company, Grand Rapids, Mich.—Surface, wet tool, lathe center, New Yankee drill, cutter and reamer grinding machines and loose pulleys.

Yale & Towne Mfg. Company, New York, N. Y.—Chain blocks, electric hoists, trolleys and special hoisting devices.

Zug Iron & Steel Company, Pittsburgh, Pa.—Staybolt, engine bolt and forging iron and chains for steam shovels.

New Electrically Driven Rolling Mill in Scotland

A 12-in. three-high rolling mill in the plant of David Colville & Sons, Ltd., Motherwell, Scotland, was recently provided with an electric drive, replacing a simple steam engine drive giving a maximum roll feed of 110 r.p.m. A direct-current motor fitted with compensation windings was provided, allowing speed variations by means of shunt regulation of 100 to 200 r.p.m., and the motor was designed to give full output at any point between these speed limits. Little space was available and this difficulty was met by arranging the flywheel and motor armature close together on the same shaft without intermediate bearing. The combined weight of armature and flywheel is 22 tons.

The motor is of 400 hp. capacity and works on a 220-volt direct-current circuit. It is designed for momentary overloads as high as 800 hp. To allow the stored energy of the flywheel to be utilized, the compound winding of the motor provides for a fall in speed of 15 per cent. between no load and full load. The flywheel itself, which is 10 ft. in diameter and weighs 15 tons, has holes cast in its web, so that air may be caught to ventilate the motor. The armature is direct coupled to the mill and a band brake operated by hand is fitted to the rim of the flywheel so that the machinery may be quickly brought to rest.

For supplying the current a mixed pressure steam turbine is used. This was built by Belliss & Morcom, Ltd., and is rated at 600 kw. with exhaust steam at 17 lb. pressure, and about 750 kw. with live steam at 125 lb. pressure. The exhaust is obtained from various steam-using machinery, pumps and the like, and an automatic valve is provided to insure that the pressure in the supply line to the turbine is always above atmospheric pressure and thus that air leaks, which are particularly detrimental to maintaining a vacuum condition, may be prevented.

New Officers of Pratt & Letchworth Company

John C. Bradley of New York and formerly of Buffalo has been elected president and general manager of the Pratt & Letchworth Company, Buffalo, manufacturer of malleable iron and steel castings, car couplers and railway supplies, succeeding Ogden P. Letchworth as president and Clifton W. Sherman as general manager. More than a year ago Mr. Letchworth decided to withdraw from the active duties of executive of this large company, and Mr. Sherman resigned June 1 to go to Hamilton, Ont., where he will be identified with a new steel-casting plant as general manager.

Mr. Bradley was formerly general manager of the Pratt & Letchworth Company, but about seven years ago resigned and went to New York to engage with his brother in a chemical manufacturing business. At the meeting of the company Joel S. Coffin, Franklin Pa., who is president of the Franklin Railway Supply Company and is also vice-president and a director of the American Brake Shoe Company, was elected one of the directors.

The full list of officers and directors elected is as follows: President, John C. Bradley; vice-president, Franklin D. Locke; treasurer, Josiah Letchworth; secretary and assistant treasurer, Willis M. Edwards. Directors, Franklin D. Locke, Robert L. Fryer, Ogden P. Letchworth, Josiah Letchworth, Joel S. Coffin, John C. Bradley, William C. Houck, L. W. Thompson, Geoffrey J. Letchworth and Clifton W. Sherman.

A Map of Texas Mining and Oil Fields.—The Bureau of Economic Geology and Technology, University of Texas, Austin, Texas, of which Dr. William B. Phillips is director, has prepared a valuable geologic and industrial map of that State. It shows the location of all known deposits of brown iron ore in east Texas, lignite mines in operation, blast furnaces and producing oil fields. The locations of deposits and operations are indicated by symbols, to which a key is given on the margin. It is planned to have the map photo-lithographed for general distribution. Meantime, in view of the general interest in the mineral resources of Texas, some advance blue prints have been sent out.

The Hudson Iron Company has removed its offices from 43 Cedar street to 20 Vesey street, New York.

THE IRON AGE

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I. A. Mekeel - - - *First Vice-President*
Fritz J. Frank - - - - - *Secretary*
M. C. Robbins - - - *General Manager*

Editors

Geo. W. Cope A. I. Findley W. W. Macon

Charles S. Baur - - *Advertising Manager*

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International Iron and Steel Specifications

We have already referred (*The Iron Age*, May 30, page 1354) to the action taken at a meeting held in London, May 8, on the movement for the adoption of international specifications for iron and steel. Of a subcommittee of seven members of the iron and steel committee (known as Ia) of the International Society for Testing Materials, three were present. In addition representatives of steel manufacturers in Great Britain, Belgium and Germany attended and took part in the discussion. The resolution adopted declared that it was inexpedient to take any action on the matter at the Congress of the International Society for Testing Materials which will meet in New York in September. There was some expression at the meeting in favor of making the definite statement in the resolution that the representatives of the countries taking part in the movement would not be in position to discuss the question at New York, but the case was not put quite that bluntly, in view of the statement by Dr. von Reippel, chairman of the subcommittee, that "it is the purpose of the Americans to come to a decision at the New York Congress." That the American members of the subcommittee have been active in the effort to establish standard international specifications is well known, and something of the extent and character of their work may be judged from the report they contributed to the last volume of the Proceedings of the American Society for Testing Materials as given on other pages of this issue. Perhaps, had they been able to attend the London meeting of the subcommittee its declaration might have been modified; on the other hand, their participation in the discussion on that occasion might have accentuated some of the expressions of representatives of British steel manufacturers who were on the ground.

In any event it is unfortunate that what has been regarded as a commendable endeavor to provide specifications calculated to "increase international commerce on lines fair to all parties concerned and to enable engineers to purchase materials on specifications that are consistent with the best practice of to-day" should encounter opposition apparently based on the belief that trade rivalry figures in the movement. In a recent editorial the London Iron and Coal Trades Review voices such a sentiment in the following:

> It would be idle, and possibly indiscreet, to discuss the original objects, if any, behind the proposal to adopt a uniform specification. In the export trade, at any rate, such a specification might operate adversely to many interests. The time may come in the future when the manufacture of steel may be such a stereotyped industry that acid open-hearth steel may rank with basic Bessemer. Until, however, that happens, makers and users of steel by processes which employ the more costly and the purer ores will look askance at specifications which propose to substitute the one for the other.

When a great gathering like the International Railway Congress at Berne in 1910 showed a sympathetic interest in the movement and expressed a desire to have a report upon it, there is evidence of a demand for international specifications that is stronger and more widespread than some recent utterances from Great Britain would have us believe. The members of the International Railway Congress Association, who would be important users of international specifications, are likely to be heard from, in spite of the effort to prevent discussion of the subject at the coming New York Congress of the International Association for Testing Materials, and it can scarcely be expected that

the action taken at London will rule the question out of consideration in September. It is much to be regretted that the fear of injury to the British export trade should have intruded itself thus early in a movement so well conceived and with so many assurances of cordial co-operation from European interests, both consuming and manufacturing.

Legislation Toward Profit Sharing

A movement has been started in the British Parliament for legislation extending the practice of co-partnership between employers and employees in industrial plants. The idea appears to be to stimulate rather than to regulate conditions which may prove beneficial to the workman because he shares in the profits which he helps to earn, and to capital because the employee will work better and with greater contentment. The chief promoter of this legislation is a prominent woolen manufacturer, a member of Parliament, who has had a profit-sharing plan in operation in his mills for a number of years with much success. He maintains that the ownership of stock in the business by employees is of great practical value in securing results, but he believes that the stock should be given outright as a part of the employee's share of the profits. Another theory is that the part of wisdom is to make the workman a stockholder, but that instead of receiving his holdings as a gift he should have the option of purchasing stock on easy terms. In the works of the Messrs. Taylor, one of whom is the active promoter of this legislation, at the end of each year, after a 5 per cent. dividend on the stock of the company has been paid, the remaining profits are apportioned between the capital and the employees in the ratio that the capital bears to the total labor cost. The latter share is the workmen's and is distributed among them in proportion to their wages, not in money but in the regular stock of the company. In succeeding years these securities earn for the holders the regular dividend.

The point is made that the employees pay nothing for their stock out of their wages. It is termed a gift to them. The criticism is made that the system has never been tested out in a period of adversity, and also that in the course of time the business must either become overcapitalized—for new stock is issued annually for distribution to employees—or at any rate the amount of capital must become so great that no profits would be left for distribution in stock after the 5 per cent. dividend is paid, and thus the system would automatically cease to operate.

The practice more commonly adopted in the United States seems preferable to that advocated in this effort in Parliament. Generally speaking, a certain amount of stock is distributed annually among such employees as wish to purchase it, and they pay for it, usually in installments, receiving the dividends all the while. The important element is that employees who subscribe—as illustrated in the United States Steel Corporation and International Harvester Company plans—receive an additional dividend which is a share of the profits beyond that received by the regular shareholders.

If Parliament or some other body possessing great influence and resources would go into this subject in a broad way, gathering together all that has been done in profit sharing, and perhaps recommending a system, or several systems, the growth of the practice would be stimulated. Profit sharing by means of bonus distribution is extending much more rapidly than the plan of distributing stock. Each has its own advantages, while there is the common beneficent result of giving the workman a stake in the business, which means much in insuring his interest and loyalty.

Safety Measures in the Trade School

It is a little singular that with all the effort to get safety devices installed in factories, trade and manual training schools employing machinery do not have them. The directors of such institutions are unquestionably aware of the safety movement and are undoubtedly entirely sympathetic with it. The absence of safeguards must then be charged to a lack of funds. This as a defense for seeming indifference cannot well be supported. It is not accepted in the case of the industrial plant. In the sense that manufacturing cost must be kept low, an expenditure calculated to increase fixed charges does not make it easy to secure the installation of safety provisions in the factory. In the same way the difficulty of securing working funds or endowment for the school cannot well be urged as an excuse for not bringing the school equipment in line. Though machinery guards, in the case of the school, may represent a relatively large money expenditure as compared with a manufacturing plant, the principle is the same.

The main point, however, is the educational value of apparatus properly protecting the operative. While the student is acquiring knowledge of processes and dexterity in manipulation, he should be surrounded by conditions likely to inculcate habits of caution and proper valuation of human life and limb. It is highly important that the shop worker be developed so that he will always demand protective measures in the shops he is to enter. It is common knowledge that the great difficulty now met in making safeguards effective is the resistance of the operatives themselves. The cases are innumerable where the worker has refused absolutely to adopt even simple measures for personal protection. Discipline in American shops is undoubtedly different from that of Continental Europe, and rules governing the clothing of the operative and compulsory introduction of gear covers, chip arresters and the like are not received kindly. Witness the diplomatic organization of workmen's committees to accomplish what should really be welcomed. Education by example in the mechanical school itself should prove a great help.

Foreign Labor in Industrial Works

Some of the recent strikes have demonstrated the danger of confining a working force to the people of one foreign nationality, particularly when such a body of men has little knowledge of the English tongue. In more than one case a nationality that has headed the rioting in one city has been an inoffensive participant in a tumultuous strike in another city. Some large manufacturing plants have given this rather new problem of labor very careful study, and the results of their investigations are illuminating, as indicating astonishing difficulties in overcoming the undesirable conditions.

Most of the foreign peoples are clannish, some more so than others, according to their ability or

willingness to assimilate American social ideas. Establishments in which these people constitute a large percentage of the employees find that a systematized classification by nationality reveals important facts. In a good many cases, it is found, one race predominates in a certain department, another race in a second department, and perhaps a third in still another section of the works. This racial alignment is especially more common where plants are subdivided under a large number of foremen to whom the hiring of men is entrusted. Among the men of these nationalities are persons of ability, and occasionally one is given responsibility and is advanced to an administrative position, usually as foreman. His inclination is to hire people of his own tongue, and gradually his department becomes a stronghold of his nationality. Once this is accomplished, to effect a change may be difficult beyond what would be thought. It could be done, of course, by adopting drastic measures, but naturally antagonisms are avoided if possible. The better way is for the management to introduce men of other races whenever it is feasible. In the beginning such a workman may find it hard sailing because he is an alien to his companions in the department. But a persistent effort will in time overcome the difficulty without creating any harmful friction. The racial classification records are the first step toward the prevention of labor conditions which may become intolerable under the lead of unscrupulous men.

The Immediate Delivery Habit

Manufacturers complain that distributers of their products are getting deeper and deeper in what they term the immediate delivery habit. With a good business the buyer has always ordered from the factory in large lots, keeping his stock as full as possible. But with a falling demand his store rooms and shelves become empty. He places his dependence upon rush orders. Manufacturers hold that their customers have gradually changed their customs in buying, until they are carrying much smaller stocks at all times, excepting possibly when business is at the high points. By so doing they have effected an economy. Their overhead is less because less money is tied up in goods. For the same reason they have increased the overhead of the manufacturer by this additional burden. The latter has had to evolve what is practically a new department, sometimes known as the "promise" department, the duty of which is to look after business which is broken up into various small shipments and in a general way to serve the conditions which have been created.

Growth in Exports to South America.—Exports to South America have shown a phenomenal gain in the fiscal year which ends with the present month. Prior to 1911 the total value of exports to South America had never reached $100,000,000. In 1911, the total was, speaking in round terms, $109,000,000, and in the current fiscal year seems likely to be about $135,000,000, having more than doubled since 1905. Argentina is the country showing the largest gain in the exports to South America. The figures now available in the Bureau of Statistics of the Department of Commerce and Labor indicate that the total exports to Argentina for the complete fiscal year will amount to about $55,000,000. To Brazil the total exports for the fiscal year will exceed $30,000,000 in value.

The increase is especially notable in lumber, leather, mineral oils, and railroad material. Automobiles exported to South America as a whole amounted in the 10 months ending with April to $1,500,000, against $688,000 in the corresponding months of the preceding year.

Railroad Wages and Cost of Living

A Comparative Study Shows American Employees to Be Far Better Off than Those in Europe

The Bureau of Railway Economics, Washington, D. C., has completed the second of its comparative studies of railroad conditions in the United States and the principal countries of Europe. This relates to the wages paid railroad employees and the cost of living, and is based on the latest years for which comparative data are available.

The average daily compensation of railroad employees of all classes for the year 1910 was in the United States, $2.23; in the United Kingdom, $1.05; excluding supplementary allowances negligibly affecting the average, it was in Prussia-Hesse 81 cents, and in Austria 89 cents. The lowest paid railroad employee in the United States, the ordinary trackman, receives a greater compensation than many of the railroad employees of France, even those of higher grades and with responsible duties. The compensation of railroad employees is from two to three times as high in the United States as in Italy.

A recent report of the English Board of Trade on railroad wages shows that the average weekly pay of enginemen in the United Kingdom in 1907 was $11.17; of firemen, $6.67. In the same year enginemen on American railroads received an average weekly compensation of $25.80, counting six days to the week, and firemen $15.24. Recent returns make it clear that in 1912 enginemen and firemen in the United States are compensated at rates of pay for specific runs that are two, three and four times as high as the corresponding rates on representative English railroads. The annual compensation of enginemen in the United States, as reported by two representative railroad companies, now ranges from $1,100 in switching service to over $2,800 in passenger service; and of firemen from $700 in switching service to over $1,700 in passenger service.

For Continental Europe official returns in requisite detail are not available for a later year than 1908. The salaries and allowances of the typical engineman in Germany amounted for that year to $646.88, in Austria to $870.80; of a fireman in Germany to $424.59, in Austria to $532 03. The annual compensation of enginemen on two of the principal railroads of France ranged in 1908 from $505.66 to $906.91, and of firemen from $324.24 to $595.98. In Italy enginemen received in 1908, salary and allowances included, from $581.10 to $812.70 a year; firemen, from $330.30 to $475.05 a year. In these Continental countries the maximum compensation is received only after many years of service.

The average annual compensation of enginemen in the United States in 1908, on an estimated basis of 300 days' service, was $1,335; of firemen, $792. In this country the rate of compensation to these employees does not depend on length of service.

In Belgium enginemen received in 1907 from $23.16 to $38.60 a month; firemen, from $17.37 to $23 16 a month; conductors and station employees, from 46 cents to 96 cents a day. In the United States, in the same year 1907, enginemen averaged, on the basis of 25 days' service, $107.50 a month; firemen, $63.50 a month; conductors, $3.69 a day; station employees, from $1.78 to $2.05 a day.

The rental of a three- or four-room house or flat is almost as high in Berlin, Paris or London as throughout the United States, but in England and on the Continent it generally runs from 30 dollars to 90 dollars a year less. The quantity of food and fuel estimated by the Board of Trade of England as the standard consumption of a typical workingman's family costs in the United States 17.8 per cent. more than in France or in Germany; 35.3 per cent. more than in Belgium and 38 per cent. more than in the United Kingdom.

It is well within the truth to estimate in a broad and general way that while the cost of living of a railroad employee in the United States is less than 50 per cent. higher than that of a corresponding employee in the United Kingdom or on the Continent, his compensation averages over twice as great.

The puddling mill in the Empire Works of the Brier Hill Steel Company at Niles, Ohio, has been closed down, and may possibly not be operated again, but a definite decision in the matter has not been reached.

Proposed Taylor-Wharton Company Merger

Negotiations are in progress which, if successful, will lead to the Taylor Iron & Steel Company, High Bridge, N. J., taking over the William Wharton, Jr., & Co., Inc., Philadelphia. The matter has been favorably acted upon by the directors of the Taylor and the Wharton companies, but the final arrangements are not expected to be made before September. Under the proposed plan the Taylor company is to own the Wharton company through a stock ownership and also own the latter's subsidiary, the Philadelphia Roll & Machine Company, which has supplied rolls for the Eastern rolling mill trade. The Wharton company has been a customer of the Taylor company for nearly 20 years and the relations have been close. Direct ownership is a natural outcome of these relations, as well as of the growing demand for manganese steel in track work, which is the principal business of the Wharton company. The main plant of the Wharton company is at Twenty-fifth street and Washington avenue, Philadelphia, and it operates a leased plant at Jenkintown, Pa. The Philadelphia Roll & Machine Company's plant adjoins the main plant at Philadelphia.

Upon completion of the proposed plan the stock and bond liabilities of the Taylor Iron & Steel Company would be as follows: There would be authorized $2,000,000 each of bonds, preferred stock and common stock, of which there would be issued $1,250,000 of bonds, $1,500,000 of preferred stock and $750,000 of common stock.

The Powder Combination Dissolved

Three companies are to take the place of the powder combination that was ordered dissolved a year ago by the United States Court, according to a final decree entered at Wilmington, Del., June 13, by the same court that rendered the decision for dissolution, on the ground that it was violating the Sherman anti-trust law. Under the decree the E. I. du Pont de Nemours Company (1902, Delaware corporation); Hazard Powder Company, Delaware Securities Company, Delaware Investment Company and Judson Dynamite & Powder Company are dissolved and the property distributed among the stockholders. The decree provides for the organization of two corporations, in addition to the E. I. du Pont de Nemours Powder Company (1903, New Jersey corporation). The two new companies can be organized out of the Eastern Dynamite Company and Laflin & Rand Powder Company, which had been decreed by the court a year ago as having been a part of the alleged illegal combination.

After December 15 the companies will not be permitted to occupy the same offices, to have the same office force or organization. It is directed that all present trade agreements alleged to be illegal, which are enumerated, be annulled. The same persons are not to be permitted to serve as officers and directors of other companies. The companies cannot acquire stock of the other corporations.

In an opinion handed down June 13 dismissing the petition as to the International Smokeless Powder & Chemical Company, it was pointed out that the army and navy have proved that the company has for some time been cooperating with the Government in a manner which is beneficial to the army and navy.

The Philadelphia Foundry Foremen

The Associated Foundry Foremen of Philadelphia held its regular monthly meeting at Columbia Hall, in that city, on the evening of June 12, John Alexander acting as president. He was elected vice-president to fill the unexpired term of the late Thomas G. Smith. J. B. Carpenter, Wilmington, Del., made an interesting address on "Foundry Practice as I Found It in the Land of the Midnight Sun." He related many incidents of his experience during some five months while superintending the making of castings at one of the large Swedish foundries for an American machinery manufacturer. Adjournment was taken until the second Wednesday in September.

The Portsmouth Steel Company, Portsmouth, Ohio, has started the system of holding weekly meetings of heads of departments for exchanging ideas and discussion of policies pertaining to the operation of the plant.

Iron and Steel Census Figures for 1909

Thirteenth Census statistics of the iron and steel, steel works and rolling mills industry of continental United States are given in a census advance bulletin to be issued by Director Durand of the Bureau of the Census, Department of Commerce and Labor. It was prepared under the supervision of Wm. M. Steuart, chief statistician for manufactures, and the following brief summary has been made.

The data do not show the entire cost of manufacture. No account has been taken of interest and depreciation. The industry was, in value of products, the fourth in rank in the census year 1909.

The figures do not cover the making of cold-rolled products, nor of forgings, castings, and manufactures of iron and steel by establishments not equipped with steel-making furnaces or hot trains of rolls. In 1909 there were in this industry 446 establishments with a total number of 260,762 persons engaged, of which 47 were proprietors and firm members, 4239 salaried officers, superintendents and managers, 14,613 male, and 1787 female clerks. The average number of wage earners was 240,076; the number in the maximum month, December, was 283,629, and in the minimum month, March, 215,076. The total number of wage-earners on December 15, 1909, or the nearest representative day, was 284,264, of which 281,801 were males, and 1114 females, 16 years of age and over; while 1273 were males, and 76 females, under 16.

The capital invested was $1,004,735,111. The total expenses were $889,501,220, of which the officials received $11,026,848, the clerks $15,164,616 the wage-earners $163,200,758, fuel and rent of power $46,136,725, other materials $611,364,131, rent of factory or works $372,540, taxes, including internal revenue $3,284,774, contract work $94,237, and other miscellaneous $38,856,591. The value of products was $985,722,534. The value added by manufacture, which is the difference between cost of materials and value of products, was $328,221,678.

CARNEGIE STEEL COMPANY IMPROVEMENTS.—The Carnegie Steel Company, Pittsburgh, is remodeling the 10-in. mill at its Homestead steel works by the addition of two 14-in. roughing stands so as to make it a little more suitable for the rolling of forging steels, such as are used by drop forging concerns and forges working on automobile parts. The company will immediately begin the construction of an additional fast running 8-in. hoop mill at its McCutcheon works on the North Side, Pittsburgh, the mill being suitable for turning out strip steel 1 in. to 1¼ in. wide of 18 to 24 gauge.

Wage Advances at Eastern Blast Furnaces.—The Empire Steel & Iron Company, Catasauqua, Pa., and the Thomas Iron Company, Hokendauqua, Pa., announced last week an advance of 10 per cent. in the wages of their New Jersey iron mine employees, effective June 15. Both companies also advanced the wages of their blast furnace employees. In the case of the former company this applies to the furnaces now in operation at Oxford, N. J., and Catasauqua, Pa. The Thomas Iron Company is operating one furnace at Hokendauqua, Pa., and may blow in another in the near future.

The following officers of the Master Car Builders' Association were elected at the convention held in Atlantic City, N. J., last week: President, Charles E. Fuller, superintendent of motive power, Union Pacific Railroad, Omaha, Neb.; vice-presidents, M. K. Barnum, general superintendent of motive power, Illinois Central Railroad, Chicago, Ill.; P. F. Crawford, general superintendent of motive power, Pennsylvania Lines West, Pittsburgh, Pa.; E. R. MacVain, superintendent of motive power, New York Central Lines, Cleveland, Ohio; treasurer, John F. Lentz, master car builder, Lehigh Valley Railroad, South Bethlehem, Pa.; executive committee, R. E. Smith, general superintendent of motive power, Atlantic Coast Line Railroad, Wilmington, N. C.; C. E. Chambers, superintendent of motive power, Central Railroad of New Jersey, Jersey City, N. J., and Henry M. LaRue, master car builder, Chicago, Rock Island & Pacific Railway, Chicago, Ill. At the close of the convention the executive committee reelected Joseph W. Taylor, Chicago, Ill., as secretary.

The Iron and Metal Markets

Labor Situation Shows Strain

Coke Contract Prices Firmly Held

Pig Iron Consumption Still Exceeds Production—Quietness in Finished Steel Markets

There is greater tension in the labor situation at iron and steel works. The drifting of workmen from one operation to another goes on, and many plant managers are finding more difficulty in holding their forces because of easier or better paying jobs offered elsewhere. The tendency throughout the industry is toward higher labor cost.

Manufacturers are less complacent under cost increase because net earnings for the first half of the year will be very lean, and the prospects for the second half, so far as profits are concerned, are far from satisfactory. Prices have advanced, it is true, but not enough to count much in dividends. An aggravation of this disappointing condition is in the impression of prosperity given by a 95 per cent. operation of steel works and rolling mills.

With all the restlessness of labor there are few strikes. At three New Jersey iron mines the men went out after demanding higher wages. At two of these a 10 per cent. advance was paid. An advance was also granted at three Eastern blast furnaces. At a Pittsburgh tube plant there has been a strike accompanied by rioting. The Amalgamated Association and the Western Bar Iron Association are conferring this week at Buffalo over the new scale which represents some advance for puddling and finishing. There is still a prospect that the Sons of Vulcan demand for a $6 puddling rate will cause a shutdown.

Merchant blast furnaces have had only a small increase in the volume of their business this year, as compared with what has happened in steel, and for Northern iron the advance in price has been slight. The deadlock between furnace companies and coke producers over the advance of 70 to 80 cents asked on contract coke is thus likely to continue.

On Connellsville coke the position of the makers seems stronger this week. It is denied that any effort is being made to restrict output, and insufficient labor supply at mines and interruptions due to heavy rains are alleged. At all events at some ovens coke has been drawn on but five instead of six days. Furnace companies as a rule are refusing to contract, standing out for a $2 basis, while $2.35 to $2.50 is still the range of Connellsville quotations. A contract for Pocahontas coke is reported at close to $2 at oven. Prompt Connellsville coke has sold as low as $2, and in one case this was shaded.

Pig iron markets show less irregularity in prices but no definite advances apart from basic iron, on which $13.25 at Valley furnace has been established, while some producers are holding out for $13.50. A sale of about 10,000 tons was made to one Pittsburgh steel company. No. 2 foundry iron is firm at $13.25 at Valley furnace. One interest contracted for 12,000 tons for sanitary castings. Eastern pig iron shows more strength. Pipe makers continue steady buyers.

Markets for finished steel show the effect of postponement of action on some pending matters, particularly by railroads, and important buying is not expected until the presidential conventions are out of the way. No changes in prices are reported apart from an advance of $2 a ton in rivets.

Consumption of pig iron is still in excess of production, as is indicated by a reduction of 15,000 tons in the first half of June in stocks of iron at furnaces in Ohio and western Pennsylvania, where the total was about 560,000 tons on June 15. In May the reduction was about 22,000 tons at the same furnaces. Meantime pig iron production is increasing, and the plans for blowing in further furnaces create a situation undeniably favorable to the stand taken by coke producers.

The departures in Eastern markets from the Pittsburgh basis for plates and shapes are disappearing. Eastern Pennsylvania plate mills have done a larger business, and structural mills in the same district are running fuller.

In Lake Superior ore the movement down the lakes is very heavy. Some additional sales were made recently to steel companies whose own mines will not get out their full requirements for the year, but nothing better than the opening prices was realized. Estimates of the year's shipments of lake ores have been increased to 46,000,000 or 47,000,000 tons.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	June 19, 1912.	June 12, 1912.	May 22, 1912.	June 21, 1911.
Pig Iron, Per Gross Ton:				
Foundry No. 2 standard, Philadelphia	$15.25	$15.25	$15.25	$15.25
Foundry No. 2, Valley furnace	13.25	13.25	13.25	13.50
Foundry No. 2, Southern, Cincinnati	14.25	14.25	14.25	13.25
Foundry No. 2, Birmingham, Ala.	11.00	11.00	11.00	10.00
Foundry No. 2, at furnace, Chicago*	14.50	14.50	14.50	15.00
Basic, delivered, eastern Pa.	15.25	15.25	15.00	14.50
Basic, Valley furnace	**13.25**	13.00	13.00	13.00
Bessemer, Pittsburgh	15.15	15.15	15.15	15.90
Malleable Bessemer, Chicago	14.50	14.50	14.50	15.00
Gray forge, Pittsburgh	13.90	13.90	13.90	13.90
Lake Superior charcoal, Chicago	16.25	16.25	15.75	16.50
Billets, etc., Per Gross Ton:				
Bessemer billets, Pittsburgh	20.50	20.50	21.00	21.00
Open hearth billets, Pittsburgh	20.50	20.50	20.50	21.00
Forging billets, Pittsburgh	28.00	28.00	27.00	26.00
Open hearth billets, Philadelphia	23.40	23.40	23.40	23.40
Wire rods, Pittsburgh	25.00	25.00	25.00	27.00
Old Material, Per Gross Ton:				
Iron rails, Chicago	16.00	16.00	16.00	14.00
Iron rails, Philadelphia	16.50	16.50	16.50	16.50
Car wheels, Chicago	*14.00*	14.25	14.00	12.50
Car wheels, Philadelphia	13.50	13.50	13.50	13.00
Heavy steel scrap, Pittsburgh	13.50	13.50	13.25	13.00
Heavy steel scrap, Chicago	*11.75*	12.00	11.75	10.25
Heavy steel scrap, Philadelphia	13.50	13.50	13.50	13.00

*The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.

Finished Iron and Steel. Per Pound to Largest Buyers:	June 19, 1912. Cents.	June 12, 1912. Cents.	May 22, 1912. Cents.	June 21, 1911. Cents.
Bessemer rails, heavy, at mill..	1.25	1.25	1.25	1.25
Iron bars, Philadelphia.....	1.30	1.30	1.30	1.27½
Iron bars, Pittsburgh.....	1.25	1.25	1.25	1.25
Iron bars, Chicago.....	1.27½	1.27½	1.25	1.20
Steel bars, Pittsburgh.....	1.20	1.20	1.20	1.25
Steel bars, tidewater, New York	1.36	1.36	1.36	1.41
Tank plates, Pittsburgh.....	1.25	1.25	1.25	1.35
Tank plates, tidewater, New York	1.41	1.41	1.36	1.51
Beams, Pittsburgh	1.25	1.25	1.25	1.35
Beams, tidewater, New York....	1.41	1.41	1.36	1.51
Angles, Pittsburgh	1.25	1.25	1.25	1.35
Angles, tidewater, New York...	1.41	1.41	1.36	1.51
Skelp, grooved steel, Pittsburgh	1.20	1.20	1.15	1.25
Skelp, sheared steel, Pittsburgh	1.25	1.25	1.20	1.35
Sheets, Nails and Wire, Per Pound to Largest Buyers:	Cents.	Cents.	Cents.	Cents.
Sheets, black, No. 28, Pittsburgh	1.90	1.90	1.90	2.00
Wire nails, Pittsburgh.....	1.60	1.60	1.60	1.70
Cut nails, Pittsburgh.....	1.55	1.55	1.55	1.60
Fence wire, ann'led, 0 to 9, P'gh.	1.40	1.40	1.40	1.50
Barb wire, galv., Pittsburgh...	1.90	1.90	1.90	2.00
Coke, Connellsville, Per Net Ton, at Oven:				
Furnace coke, prompt shipment	**$2.00**	$1.90	$2.20	$1.40
Furnace coke, future delivery..	**2.35**	2.25	2.35	1.60
Foundry coke, prompt shipment	2.40	2.40	2.50	1.75
Foundry coke, future delivery..	**2.50**	2.40	2.40	2.05
Metals, Per Pound:	Cents.	Cents.	Cents.	Cents.
Lake copper, New York.....	**17.62½**	17.50	16.62½	12.75
Electrolytic copper, New York..	**17.50**	17.37½	16.37½	12.50
Spelter, St. Louis.....	**6.90**	6.75	6.70	5.55
Spelter, New York.....	**7.05**	6.90	6.85	5.75
Lead, St. Louis.....	4.37½	4.37½	4.07½	4.35
Lead, New York.....	4.50	4.50	4.20	4.50
Tin, New York.....	**48.50**	47.37½	45.50	44.87½
Antimony, Hallett, New York..	*7.75*	7.87½	7.62½	8.75
Tin plate, 100-lb. box, New York	$3.64	$3.64	$3.64	$3.94

Finished Iron and Steel f.o.b. Pittsburgh

Freight rates from Pittsburgh in carloads, per 100 lb.: New York, 16c.; Philadelphia, 15c.; Boston, 18c.; Buffalo, 11c.; Cleveland, 10c.; Cincinnati, 15c.; Indianapolis, 17c.; Chicago, 18c.; St. Paul, 32c.; St. Louis, 22½c.; New Orleans, 30c.; Birmingham, Ala., 45c.; Pacific coast, 80c. on plates, structural shapes and sheets No. 11 and heavier; 85c. on sheets Nos. 12 to 16; 95c. on sheets No. 16 and lighter; 65c. on wrought pipe and boiler tubes.

Plates.—Tank plates, ¼ in. thick, 6¼ in. up to 100 in. wide, 1.25c., base, net cash, 30 days. Following are stipulations prescribed by manufacturers, with extras:

Rectangular plates, tank steel or conforming to manufacturers' standard specifications for structural steel dated February 6, 1903, or equivalent, ¼ in. and over on thinnest edge, 100 in. wide and under, down to but not including 6 in. wide, are base.

Plates up to 72 in. wide, inclusive, ordered 10.2 lb. per square ft. are considered ¼-in. plates. Plates over 72 in. wide must be ordered ¼ in. thick on edge, or not less than 11 lb. per square ft. to take base price. Plates over 72 in. wide ordered less than 11 lb. per square foot, down to the weight of 3-16 in. take the price of 3-16 in.

Allowable overweight, whether plates are ordered to gauge or weight, to be governed by the standard specifications of the Association of American Steel Manufacturers.

Extras.	Cents per lb.
Gauges under ¼ in. to and including 3-16 in. on thinnest edge	.10
Gauges under 3-16 in. to and including No. 8	.15
Gauges under No. 8 to and including No. 9	.25
Gauges under No. 9 to and including No. 10	.30
Gauges under No. 10 to and including No. 12	.40
Sketches (including all straight taper plates) 3 ft. and over in length	.10
Complete circles, 3 ft. in diameter and over	.20
Boiler and flange steel	.10
"A. B. M. A." and ordinary firebox steel	.20
Still bottom steel	.30
Marine steel	.40
Locomotive firebox steel	.50
Widths over 100 in. up to 110 in., inclusive	.05
Widths over 110 in. up to 115 in., inclusive	.10
Widths over 115 in. up to 120 in., inclusive	.15
Widths over 120 in. up to 125 in., inclusive	.25
Widths over 125 in. up to 130 in., inclusive	.50
Widths over 130 in	1.00
Cutting to lengths or diameters under 3 ft. to 2 ft., inclusive	.25
Cutting to lengths or diameters under 2 ft. to 1 ft., inclusive	.50
Cutting to lengths or diameters under 1 ft.	1.55

No charge for cutting rectangular plates to lengths 3 ft. and over.

Wire Rods and Wire.—Bessemer, open hearth and chain rods, $25. Fence wire, Nos. 0 to 9, per 100 lb., terms 60 days, or 2 per cent. discount in 10 days, carload lots, to jobbers, annealed, $1.40; galvanized, $1.70. Galvanized barb wire, to jobbers, $1.90; painted, $1.60. Wire nails, to jobbers, $1.60.

The following table gives the prices to retail merchants on wire in less than carloads, including the extras Nos. 10 to 16, which are added to the base price:

Fence Wire, per 100 lb.

Nos.	0 to 9	10	11	12 & 12½	13	14	15	16
Annealed	$1.55	$1.60	$1.65	$1.70	$1.80	$1.90	$2.00	$2.10
Galvanized ...	1.85	1.90	1.95	2.00	2.10	2.20	2.60	2.70

Structural Material.—I-beams, 3 to 15 in.; channels, 3 to 15 in., and angles, 3 to 6 in., on one or both legs, ¼ in. and over, 1.25c. Other shapes and sizes are quoted as follows:

	Cents per lb.
I-beams over 15 in.	1.30 to 1.35
H-beams over 18 in.	1.30 to 1.35
Angles over 6 in.	1.30 to 1.35
Angles, 3 in. on one or both legs, less than ¼ in. thick, plus full extras, as per steel bar card Sept. 1, 1909	1.30 to 1.35
Tees, 3 in. and up	1.30 to 1.35
Zees, 3 in. and up	1.25 to 1.30
Angles, channels and tees, under 3 in., plus full extras as per steel bar card Sept. 1, 1909.	1.30 to 1.35
Deck beams and bulb angles	1.55 to 1.60
Hand rail tees	2.10 to 2.25
Checkered, trough and corrugated floor plates..	2.25 to 2.50

Extras for Cutting to Length.

	Cents per lb.
Under 3 ft., to 2 ft., inclusive	.25
Under 2 ft., to 1 ft., inc'usive	.50
Under 1 ft.	1.55

No charge for cutting to lengths 3 ft. and over.

Sheets.—Makers' prices for mill shipments on sheets of U. S. Standard gauge, in carload and larger lots, on which jobbers charge the usual advance for small lots from store, are as follows:

Blue Annealed Sheets.

	Cents per lb.
Nos. 3 to 8	1.25 to 1.30
Nos. 9 and 10	1.35 to 1.40
Nos. 11 and 12	1.40 to 1.45
Nos. 13 and 14	1.45 to 1.50
Nos. 15 and 16	1.55 to 1.60

Box Annealed Sheets, Cold Rolled.

Nos. 10 to 12	1.55 to 1.60	.....
Nos. 13 and 14	1.60 to 1.65	.....
Nos. 15 and 16	1.65 to 1.70	1.75 to 1.80
Nos. 17 to 21	1.70 to 1.75	1.80 to 1.85
Nos. 22, 23 and 24	1.75 to 1.80	1.85 to 1.90
Nos. 25 and 26	1.80 to 1.85	1.90 to 1.95
No. 27	1.85 to 1.90	1.95 to 2.00
No. 28	1.90 to 1.95	2.00 to 2.05
No. 29	1.95 to 2.00	2.05 to 2.10
No. 30	2.05 to 2.10	2.15 to 2.20

Galvanized Sheets of Black Sheet Gauge.

Nos. 10 and 11	1.90 to 2.00
Nos. 12, 13 and 14	2.00 to 2.10
Nos. 15 and 16	2.10 to 2.15
Nos. 17 to 21	2.30 to 2.40
Nos. 22, 23 and 24	2.40 to 2.50
Nos. 25 and 26	2.60 to 2.70
No. 27	2.75 to 2.85
No. 28	2.90 to 3.00
No. 29	3.00 to 3.10
No. 30	3.20 to 3.30

All above rates on sheets are f.o.b. Pittsburgh, terms 30 days net, or 2 per cent. cash discount in 10 days from date of invoice, as also are the following:

Corrugated Roofing Sheets by Weight.

Effective April 18, 1912, the rates for painted and formed roofing sheets, per 100 lb., as announced by most of the leading sheet manufacturers, are based on the following extras for painting and forming over prices for corresponding gauges in black and galvanized sheets:

		Gauges, cents per 100 lb.		
Painting.	29	25 to 28	19 to 24	12 to 18
Regular or oiling	...	0.15	0.10	0.05
Graphite, regular	...	0.25	0.15	0.10
Forming.				
2, 2½, 3 and 5 in. corrugated	0.05	0.05	0.05	0.05
2 V-crimped, without sticks..	0.05	0.05	0.05	...
⅝ to 1¼ in. corrugated	0.10	0.10	0.10	...
3 V-crimped, without sticks...	0.10	0.10	0.10	...
Pressed standing seam, with cleats	...	0.15	0.15	...
Plain roll roofing, with or without cleats	0.15	0.15	0.15	...
Plain brick siding	...	0.20	...	...
3-15 in. crimped	0.20	0.20	0.20	...
Weatherboard siding	...	0.25	0.25	...
Beaded ceiling	...	0.25	0.25	...
Rock face brick and stone siding	...	0.25	...	...
Roll and cap roofing, with caps and cleats	0.25	0.25	...	...
Roofing valley, 12 in. and wider	...	0.25	0.25	...
Ridge roll and finishing (plain or corrugated)	...	0.65	0.65	0.65

Corrugated Roofing Sheets, with 2½-In. Corrugations, per Square.

Some leading manufacturers of roofing material are

still quoting on an area basis and are naming prices as follows:

Gauge.	Painted.	Galvanized.	Gauge.	Painted.	Galvanized.
29.....	....	$2.40	23.....	$2.30	$3.50
28.....	$1.35	2.55	22.....	2.50	3.80
27.....	1.50	2.60	21.....	2.70	4.05
26.....	1.60	2.65	20.....	2.90	4.35
25.....	1.80	3.05	18.....	2.90	5.70
24.....	2.00	3.15	16.....	4.70	6.50

Wrought Pipe.—The following are the jobbers' carload discounts (card weight) on the Pittsburgh basing card on steel pipe, in effect from June 1, 1912; black iron pipe from December 1, 1911; galvanized iron pipe from March 1, 1912, one point greater being allowed on merchant weight:

	Steel		Iron	
	Black.	Galv.	Black.	Galv.
Butt Weld.				
⅛ and ¼ in.....	73	53	68	49
⅜ in.	74	64	69	53
½ in.	77	67	72	59
¾ to 1½ in.....	80	72	75	64
2 to 3 in.....	81	74	76	65
Lap Weld.				
1¼ and 1½ in.....	..	..	68	61
2 in.	78	71	72	63
2½ to 4 in.	80	73	74	66
4½ to 6 in.....	79	71	73	65
7 to 12 in.....	78	68	71	61
13 to 15 in.....	55	..	47	..
Plugged and Reamed.				
1 to 1½ in., butt weld.....	78	70	73	62
2 to 3 in., butt weld.....	79	72	74	63
2 in., lap weld.....	76	69	70	61
2½ to 4 in., lap weld.....	78	71	72	64
Butt Weld, extra strong, plain ends, card weight.				
⅛, ¼, ⅜ in.....	69	59	65	55
½ in.	74	68	70	63
¾ to 1½ in.....	78	72	74	65
2 to 3 in.....	79	73	75	66
Lap Weld, extra strong, plain ends, card weight.				
1½ in.	..	..	66	60
2 in.	75	69	71	63
2½ to 4 in.....	77	71	73	66
4½ to 6 in.....	76	70	72	65
7 to 8 in.	70	60	65	55
9 to 12 in.....	65	55	60	50
Butt Weld, double extra strong, plain ends, card weight.				
½ in.	64	58	60	52
¾ to 1½ in.....	67	61	63	55
2 to 2½ in.....	69	63	65	57
Lap Weld, double extra strong, plain ends, card weight.				
2 in.	65	59	61	52
2½ to 4 in.....	67	61	63	57
4½ to 6 in.....	66	60	62	56
7 to 8 in.....	60	50	55	45

The above discounts are subject to the usual variation in weight of 5 per cent. Prices for less than carloads are two (2) points lower basing (higher price) than the above discounts on black and three (3) points on galvanized.

Boiler Tubes.—Discounts on lap welded steel and standard charcoal iron boiler tubes to jobbers in carloads are as follows:

Steel.		*Standard Charcoal Iron.*	
1¾ to 2¼ in.....	64	1½ in.	48
2½ in.	66½	1¾ to 2¼ in.....	50
2¾ to 3¼ in.....	71½	2½ in.	55
3½ to 4 in.....	74	2¾ to 3¼.....	57½
5 to 6 in.....	66½	3½ to 5 in.....	60
7 to 13 in.....	64		

Locomotive and steamship special grades bring higher prices.

2½ in. and smaller, over 18 ft., 10 per cent. net extra.
2¾ in. and larger, over 22 ft., 10 per cent. net extra.

Less than carloads will be sold at the delivered discounts for carloads, lowered by two points for lengths 22 ft. and under to destinations east of the Mississippi River; lengths over 22 ft. and all shipments going west of the Mississippi River must be sold f.o.b. mill at Pittsburgh basing discount, lowered by two points.

Pittsburgh

PITTSBURGH, PA., June 19, 1912.

Expectations that this month would show heavy specifying against contracts for all kinds of semi-finished and finished steel are being fully realized, several steel mills reporting that their specifications up to this date are the heaviest ever known in a similar time and are likely to continue just as heavy through this month. Many contracts carry a clause that unless all material is specified for 30 days prior to expiration they can be cancelled, and this will be taken advantage of by some of the steel mills, their object being to start July as far as possible with new contracts at slightly higher figures. The steel mills and the mills rolling finished iron and steel are busier now than at any time in about five years and have a great deal of work on their books ahead of them. Premiums for prompt delivery are becoming more numerous, steel bars having sold as high as 1.30c. and plates at 1.35c., while 1.50c. has been paid for plates in small lots for prompt shipment. The only advance in prices in the week was on rivets, which were put up $2 a ton. Following the recent break in prices of furnace coke, that market has grown strong. Scrap is fairly active, but the higher prices expected by dealers have not been realized. Several heads of selling departments in the larger steel companies state that they are spending much of their time explaining to customers why deliveries are not being made more promptly. Any early increase in finished output is practically out of the question. The mills that sign the Amalgamated scale for puddling and finishing are watching the conference at Buffalo, N. Y., this week between the Amalgamated Association and the Western Bar Iron Association and the hope is expressed that a quick settlement will be reached so that there will be no interference with the present operations of the mills. There is an unprecedented scarcity of labor in all manufacturing districts and in the coke regions, and as high as 25c. an hour for common labor has been offered in some cases. The Pittsburgh Industrial Development Commission is making a strong effort to get men in response to requests from manufacturing concerns, but only with indifferent success.

Pig Iron.—The new demand for Bessemer iron is very light, but basic and foundry irons have been quite active, with prices on basic firm and slightly higher. The Standard Sanitary Mfg. Company bought 12,000 tons of No. 2 foundry iron for its New Brighton and Allegheny, Pa., works on the basis of $13.25 at Valley furnace for Northern No. 2 and also bought 500 tons of gray forge iron at $13 Valley furnace, all this iron being for third quarter delivery. A sale is also reported to a leading open-hearth steel interest of 10,000 to 12,000 tons of basic iron for July delivery at $13.25 at Valley furnace, and this price seems to be bottom of the market. One Mahoning Valley furnace interest refused last week $13.25 at furnace for 6,000 tons of basic for last half of the year delivery and is holding its basic iron firm at $13.50 at furnace. The recent firming up in prices of furnace coke and the fact that most coke producers are now holding for $2.50 at oven for furnace coke for the last half of the year is believed to be partly responsible for the stronger pig iron market. A sale of 1200 tons of malleable Bessemer iron, deliveries 200 tons a month over last half, is reported at $13.25 at Valley furnace, but small lots for prompt shipment can be had at $13 at furnace. We have advanced prices 25c. a ton on basic iron and now quote the market as follows: Bessemer iron, $14.25; basic, $13.25 to $13.50; Northern No. 2 foundry, prompt delivery, $13.25 and for last half, $13.50; malleable Bessemer, $13 to $13.25, and gray forge $13, all at Valley furnace; the freight rate to the Pittsburgh district being 90c. a ton.

Steel Billets and Sheet Bars.—Sales of fairly large lots of Bessemer and open-hearth sheet bars have been made in the past week at $21.75 to $22 and reports are current of premiums of $1 to $2 a ton being paid for billets and sheet bars for prompt shipment. The leading steel companies are sold up and have little or no steel to spare, so that any business being placed in billets and sheet bars is being taken by the smaller interests. It is probable premiums over our quotations would have to be paid for billets or sheet bars where the mill would guarantee prompt delivery. For delivery into third quarter we quote: Bessemer and open-hearth billets, $20.50 to $21; Bessemer and open-hearth sheet bars, $21.50 to $22; axle billets, $25; forging billets to be used for general forging purposes, $28, all f.o.b. cars Pittsburgh or Youngstown.

Ferroalloys.—The new demand for ferromanganese for prompt shipment has quieted down and no new sales are reported in the past week. Prices, however, continue very firm and we note a sale of 800 tons of English 80 per cent. ferromanganese for last half of the year delivery at $48.50 Baltimore and a sale of 200 tons for prompt shipment at the same price, both lots having been bought by one interest. There is some inquiry for ferromanganese for the last half and in all cases $48.50 Baltimore is the minimum price quoted. For prompt shipment dealers are still asking anywhere from $50 to $55 in small lots, but there is very little new inquiry. Several sales of 50 per cent. ferrosilicon, aggregating about 100 tons, have been made at full prices. We quote 80 per cent. ferromanganese at $48.50 Baltimore for forward delivery and from $50 to $55 in small lots for spot shipment. We quote 50 per cent. ferrosilicon in lots up to 100 tons at $70; over 100 tons to 600 tons, $69, and over 600 tons, $68, Pittsburgh. The lower grades are ruling

at about $20 for 10 per cent.; $21 for 11 per cent.; $22 for 12 per cent., f.o.b. cars at furnace, Ashland, Ky., or Jackson, Ohio. On ferrotitanium we quote 8c. per lb. for carload lots; 10c. per lb. in 2000-lb. lots and over, and 12½c. per lb. in lots up to 2000 lb.

Wire Rods.—The market continues quiet and the expected inquiries from consumers for last half of the year delivery have not developed. It is probable these will come out late this month or early in July. We quote Bessemer, open hearth and chain rods at $25 to $25.50, Pittsburgh.

Muck Bar.—Two or three fairly large inquiries for muck bar for third quarter delivery are up; but it is very scarce. Makers that ordinarily are sellers of part of their output are now holding it for their own use, fearing there may be labor troubles after July 1 and a shutting down of puddling mills until the new wage scales are signed up. The local market on muck bar is very strong, and we quote best grades made from all pig iron at $29.50 to $30, f.o.b. Pittsburgh.

Skelp.—The market on skelp is very strong and new demand is active, with the available supply of skelp very limited. Prices are firm and sales of 2000 to 3000 tons of grooved steel skelp have been made at 1.20c., Pittsburgh, and about 3000 tons of grooved iron skelp at 1.65c., Pittsburgh. We quote grooved steel skelp at 1.20c.; sheared steel skelp, 1.25c.; grooved iron skelp, 1.65c. to 1.70c., and sheared iron skelp 1.70c. to 1.75c., delivered buyer's mill in the Pittsburgh district.

Steel Rails.—Business in standard sections and in light rails is quite heavy and specifications are coming in freely. The Carnegie Steel Company has received a contract for 5000 tons of standard sections from the Carolina, Clinchfield & Ohio Railroad and has also booked other contracts aggregating considerable tonnage. The National Railways of Mexico is in the market for 1650 tons of standard sections. The Ohio Works of the Carnegie Steel Company at Youngstown, Ohio, has finished rolling a large order of open hearth rails for the New York Central Railroad and is running this week on a similar order for the Baltimore & Ohio. The Carnegie Steel Company received new orders and specifications last week for close to 3500 tons of light rails and specifications over the rest of June are expected to be heavy. We quote splice bars at 1.50c. per lb. and rails as follows: Standard sections, 1.25c. per lb.; 8 and 10-lb. light rails, 1.29½c.; 12 and 14-lb., 1.20c.; 16 and 20-lb., 1.15c.; 25, 30, 35, 40 and 45-lb., 1.10c., in carload lots, f.o.b. Pittsburgh.

Structural Material.—New inquiries continue quite heavy, but no large local contracts were placed in the past week. The Adams Express Company building in New York, 14,000 tons, and the coal pier for the Chesapeake & Ohio at Newport News are expected to be placed within the next few days. The Fort Pitt Bridge Works has taken about 500 tons of bridge work for an Eastern railroad. The Jones & Laughlin Steel Company has taken 600 tons for a garage and 100 tons plates for Panama Canal docks. There are still reports that an advance of $1 a ton on shapes will be made between now and July 1, but nothing official has been given out. We quote beams and channels up to 15 in. at 1.25c., Pittsburgh.

Plates.—Orders for steel cars actually placed in the past week were light, but it is expected some good contracts will be given out between now and July 1. The Baltimore & Ohio Railroad is expected to close very soon for 14,000 steel underframe cars which will require about 7000 tons of plates and shapes. The Harriman Lines have inquiries out for 12,000 freight cars and the Pennsylvania Lines East are also in the market for a large number of cars. The Pressed Steel Car Company has taken 24 steel coaches for the Norfolk & Western Railroad, while the Illinois Central has placed 2500 steel gondola cars. The Havana Central Railroad has ordered 100 box cars from the Standard Steel Car Company. The Riter-Conley Mfg. Company has taken pipe line construction work for the Sandusky River Power Company at Fremont, Ohio, calling for 1030 tons of plates which will be furnished by the Carnegie Steel Company. All the plate mills are filled up and are considerably back in deliveries, one leading mill stating it is 14 weeks behind in shipments. Plates in wide sizes for prompt shipment have recently commanded premiums of $2 a ton.

Iron and Steel Bars.—The new demand for both iron and steel bars is heavy and specifications against contracts are coming in at an unprecedented rate, the mills getting further back in deliveries right along. Consumers are specifying heavily against contracts that expire on June 30, as unspecified tonnages in these contracts will be promptly canceled by the mills on July 1. We note some sales of steel bars for delivery within two weeks from date of order at 1.30c. or $2 a ton over regular prices. There may be a shutdown of the bar iron mills on July 1, as several leading makers that sign the Sons of Vulcan scale have said that under no circumstances will they pay $6 a ton for puddling. Prices are very firm and we quote steel bars at 1.20c. on new orders and iron at 1.25c. to 1.30c., f.o.b. Pittsburgh.

Sheets.—The new demand for sheets in the past week or two has materially increased and with specifications coming into the mills at an unprecedented rate they are getting further behind in deliveries and are also having a good deal of trouble in getting sheet bars promptly. The average of prices being obtained by the mills for sheets is gradually improving and in July is expected to be at least 50c. a ton better than in this month. All the sheet mills are operating to practically full capacity, but are handicapped to some extent by an insufficient supply of labor. It is stated the Brier Hill Steel Company will build 10 new hot sheet mills at its new plant at Youngstown, Ohio. The market is firm, No. 28 black sheets being held at 1.90c. to 1.95c. and galvanized sheets from 2.90c. to 3c., f.o.b. Pittsburgh, the lower prices named being reported as absolute minimum of the market.

Tin Plate.—Very little new business is being placed, as this is the dull season in this trade, but specifications against contracts continue very heavy and shipments in June are expected to be fully as heavy as in month's. The American Sheet & Tin Plate Company's and, in fact, practically all the tin plate mills are running to 95 per cent. or more of capacity and have their output for third quarter all sold up. A fair amount of new business has been placed on the $3.50 per box basis and some tin plate makers are holding firm for this price, while others will accept desirable orders from regular customers on the $3.40 basis, for delivery in third quarter. The market is very firm and we quote tin plate at $3.40 to $3.50 base for 14 x 20 coke plates, f.o.b. Pittsburgh.

Cotton Ties.—We continue to quote at 72c. per bundle, f.o.b. Pittsburgh, and a large tonnage has been placed at this price.

Hoops and Bands.—The new inquiry for hoops and bands is only fair, and mostly for small lots, consumers being covered for some time ahead on contracts placed at lower prices than are ruling now. Some of these expire on June 30, and specifications this month will be heavy, as unspecified tonnages will be canceled by the mills by limitation. It is stated that some new contracts have recently been made for both hoops and bands for last half of the year at present prices. We quote steel bands on new orders at 1.20c., with extras as per the steel bar card and steel hoops at 1.25c. to 1.30c., one or two makers of steel hoops state they are holding at 1.30c. minimum.

Bolts and Rivets.—An advance of $2 a ton in prices of rivets was made last week on account of the heavy demand, and the higher prices ruling for steel. The new demand for rivets and bolts is heavier now than for a long time, and it is stated some makers are from two to three months back in deliveries. We now quote button head structural rivets at $1.60 and cone head boiler rivets at $1.70 per 100 lb. base in carload lots, f.o.b. Pittsburgh. Prices on bolts are referred to as being very strong, and we quote G. P. coach and lag screws 80 and 20 per cent. off, small carriage bolts, cut thread, 80 and 7½ per cent. off; small carriage bolts, rolled threads, 80 and 15 off; large carriage bolts, 75 and 10 off; small machine bolts, rolled threads, 80 and 20 off; small machine nuts, cut threads, 80 and 12½ off; large machine bolts, 75 and 15 off; square hot-pressed nuts, blank or tapped, $6.30 off, and hexagon nuts, $7.10 off. These prices are in lots of 300 lb. or over delivered within a 20c. freight radius of maker's works.

Shafting.—It is stated that the recent advance in prices on cold rolled shafting of two points is being well maintained, but the new demand is light and only for small lots, most consumers being covered for some time ahead. Specifications against contracts placed some time ago at lower prices than are ruling now are being received by the mills in moderate volume. We quote cold rolled shafting at 65 per cent. off in carload and larger lots and 60 per cent. in less than carload lots delivered in base territory.

Spelter.—The market continues very firm, and new demand is reported heavy with consumption larger at present than at any time for some months. Still higher prices are predicted, and we quote prime grades of Western spelter at 6.80c. to 6.85c., East St. Louis, equal to 6.92½c. and 6.97½c., Pittsburgh.

Railroad Spikes.—The New York Central, Baltimore

& Ohio, Boston & Maine, and in fact nearly all leading railroads are specifying heavily against contracts, and the spike makers are very much behind in deliveries. One company reports that it has over 50,000 kegs on its books, and is about eight weeks back in shipments. The recent demand for small railroad and boat spikes has been abnormally heavy and they are very scarce. For this reason the present differences in prices of standard sizes and small spikes is about $3 a ton. We quote railroad spikes 5½ by 9-16 in. at $1.45 to $1.50, and small railroad and boat spikes at $1.60 base. These prices are minimum of the market, which is very strong.

Wire Products.—The new demand for wire nails in the past week has been slightly better, and shipments by the mills at present are a little heavier than usual at this time, which is the off season of the year. Some contracts expire on June 30 and any unspecified tonnage on these contracts will be canceled. It is stated that practically all contracts on the $1.50 basis have been cleaned up or canceled, and that most of the business now on the books of the mills is on the $1.55 basis. The new demand for barb and fence wire is quiet and will continue so until fall trade starts next August or September. There is some weakness in prices of wire nails, recent new orders having been taken 15c. a keg under the regular price. We quote wire nails at $1.60; cut nails, $1.50; galvanized barb wire, $1.90; painted, $1.60; annealed fence wire, $1.40, and galvanized fence wire, $1.70, f.o.b. Pittsburgh, usual terms, freight added to point of delivery.

Merchant Steel.—The new demand for seasonable merchant steels is quite active and specifications against contracts are also coming in very freely. Some of the mills are from three to four weeks behind in shipments. Specifications against contracts this month are likely to be very heavy as a good many contracts expire on June 30, and consumers will take out as much material against these contracts as possible for fear of cancelations. Prices are firm and we quote: Iron finished tire, 1½ by ⅜ in. and larger, 1.20c. base, under ⅜, 1.35c. base; planished tire, 1.45c., channel tire ¾, ⅞ and 1 in., 1.70c; 1⅛ in. and larger, 1.60c.; toe calk, 1.75c. base; flat sleigh shoe, 1.25c.; concave or convex, 1.60c.; cutters shoes, tapered or bent, 2.20c.; spring steel, 1.80c.; machinery steel, smooth finish, 1.60c., all f.o.b. cars, Pittsburgh.

Merchant Pipe.—The new demand for merchant pipe continues quite heavy and all the leading pipe mills are from three or four weeks to six weeks back in shipments. The National Tube Company has taken an order for 150 miles of 8-in. pipe for a gas line and another mill has closed for 25 to 30 miles of 6-in., also for a gas line. The Dayton Pipe Coupling Company, Dayton, Ohio, has secured through its Pittsburgh office a contract for pipe couplings for 25 miles of 14 in. pipe from the Peoples Natural Gas Company. The Ohio Fuel Supply Company has placed a contract with the Youngstown Sheet & Tube Company for 20 miles of 6 in. steel pipe. Spang, Chalfant & Co., Inc., has issued a new card on iron pipe making an advance of one point or $2 a ton on all sizes. The market is very firm and one or two leading pipe mills are not anxious to close up contracts at present discounts, believing there may be an advance of one point or $3 a ton between now and July 1. It is stated that present discounts are being very firmly held.

Boiler Tubes.—New orders and specifications against contracts for boiler tubes are so heavy that the National Tube Company has started up its Syracuse, N. Y., works which has been idle for more than a year, the plant having a capacity of 20,000 tons per year of boiler tubes.

Coke.—It is denied that any concerted action has been taken by the coke makers looking to the restriction of output in order to advance prices. The recent falling off in production is explained by the fact that at a number of the coke plants and coal mines the supply of labor is not slufficient to furnish a full output of coal from the mines in order to charge all the ovens and some operators are laying off ovens for a day or two until a full supply of coal can be obtained to charge them. The market on prompt furnace coke and for delivery over last half of this year is very strong. Four or five of the leading operators are fairly sold up and for the last half are still holding at $2.50 at oven. Some makes of furnace coke are being quoted at about $2.35 on contracts for the second half. The Westinghouse interests are in the market for 2000 tons per month or more of foundry coke for last half of the year, and the Pressed Steel Car Company is asking for 1500 to 2000 tons of crushed and foundry coke per month for last half. The Bessemer Coke Company, which is well sold up on both furnace and foundry coke, has put its price on 72-hr foundry at $2.75 net tons to consumers for last half of the year delivery. We note a sale of 50 cars of standard furnace coke for prompt shipment at $2.10 net tons at oven and also 6000 to 7000 tons at $2.25 net tons at oven. Strictly standard furnace coke for prompt shipment is strong at $2.10 to $2.25 net tons at oven, the latter price being for the highest quality coke. A Sharpville, Pa., furnace interest is in the market for 5000 to 6000 tons of furnace coke per month for last half and is refusing to pay $2.50 at oven, contending the present prices of Bessemer and basic iron do not warrant $2.50 for coke. The output of coke last week in the Upper and Lower Connellsville region was slightly higher than the previous week, and would have been still greater had it not been for heavy rains which caused washouts and interfered to some extent with operations at some of the ovens. We quote 72-hr foundry coke of standard makes at $2.60 to $2.75 in net tons at oven, and about $2.50 for prompt shipment.

Iron and Steel Scrap.—The efforts of the dealers to get higher prices for scrap are not meeting with much success, scrap being offered this week at about the same prices that ruled last week. Several dealers who had fairly large stocks of scrap, believing that prices are probably as high as they will go for the present, sold fairly large tonnages in the past week, but were not able to get any higher figures. Most heavy consumers are making a great deal of scrap themselves and this is restricting their purchases in the open market, so that sales by dealers are not as heavy as they would be otherwise. We note sales of about 2000 to 2500 tons of heavy steel scrap at $13.50 delivered Monessen, and Sharon, Pa. Low phosphorus melting scrap running under .40 is firm at $16, Pittsburgh, and we note a sale of 800 tons at that price. Borings are firm at about $10, and machine shop turnings $10.75 to $11. Dealers quote as follows in gross tons:

Heavy steel scrap, *Steubenville, Follansbee, Brackenridge, Sharon, Monessen and Pittsburgh delivery	$13.50
No. 1 foundry cast	$12.75 to 13.00
No. 2 foundry cast	11.50 to 11.75
Bundled sheet scrap, f.o.b. consumers' mills, Pittsburgh district	11.75 to 12.00
Rerolling rails, Newark and Cambridge, Ohio, Cumberland, Md., and Franklin, Pa.	13.75 to 14.00
No. 1 railroad malleable stock	12.50 to 12.75
Grate bars	9.75 to 10.00
Low phosphorus melting stock	15.75 to 16.00
Iron car axles	22.50 to 22.75
Steel car axles	15.75 to 16.00
Locomotive axles	22.00 to 22.50
No. 1 busheling scrap	12.50 to 12.75
No. 2 busheling scrap	8.50 to 8.75
Old car wheels	14.00 to 14.25
*Cast iron borings	10.00 to 10.25
*Machine shop turnings	10.75 to 11.00
†Sheet bar crop ends	14.75 to 15.00
Old iron rails	15.50 to 15.75
No. 1 wrought scrap	13.75 to 14.00
Heavy steel axle turnings	11.00 to 11.25
Stove plate	10.25 to 10.50

*These prices are f.o.b. cars at consumers' mills in the Pittsburgh district.
†Shipping point.

Chicago

CHICAGO, ILL., June 17, 1912.

Local market transactions at this writing are overshadowed by the political events transpiring in this city. The special interest is centered on the coke situation. Spot furnace coke is commanding prices nearly as high as foundry coke and the effect of this condition on new contracts is being closely watched. Important new contracts for rails, particularly for the Chicago, Milwaukee & St. Paul Railroad, are noted. The Illinois Central Railroad has distributed orders for 2500 cars and this is the last of the important inquiries now pending in this territory with prospect of prompt closing. The mills hope to obtain some relief through the cancelation of unspecified tonnage on expiring contracts. The pig iron market, while comparatively quiet, exhibits considerable strength. A number of sales of both Southern foundry and malleable Bessemer from local furnaces have been made.

Pig Iron.—The local pig iron situation is characterized by a decided lack of general inquiry, while at the same time a number of purchases have proved an immediate need for iron. This applies both to Southern foundry iron, of which several sales ranging from 300 to 1000 tons of No. 2 and No. 3 grades are reported. Sales of the same kind of local iron, particularly malleable, have also been made. That a fair proportion of the foundries in this territory are melting iron at a normal rate may be apprehended from a number of instances where contract deliveries have been anticipated.

Southern quotations are very generally upon the basis of $11.50 for last half delivery, while local furnaces are still quoting $14.50, at the furnace. At Milwaukee iron is being delivered at about the prices Chicago furnaces can offer on a $14.50 basis, with 50c. freight. Prices continue firm and we quote, for Chicago delivery, except for local irons, which are f.o.b. furnace, the following prices on prompt shipments:

Lake Superior charcoal	$16.25 to $16.75
Northern coke foundry, No. 1	15.00
Northern coke foundry, No. 2	14.50
Northern coke foundry, No. 3	14.25
Northern Scotch, No. 1	16.00
Southern coke, No. 1 foundry and No. 1 soft	16.10 to 16.35
Southern coke, No. 2 foundry and No. 2 soft	15.60 to 15.85
Southern coke, No. 3	15.35 to 15.60
Southern coke, No. 4	14.85 to 15.10
Southern gray forge	14.35 to 14.60
Southern mottled	13.85
Malleable Bessemer	14.50
Standard Bessemer	16.75
Basic	14.50
Jackson County and Kentucky silvery, 6 per cent	17.40
Jackson County and Kentucky silvery, 8 per cent	18.40
Jackson County and Kentucky silvery, 10 per cent	19.40

Rails and Track Supplies.—In addition to its previously reported rail purchases the Chicago, Milwaukee & St. Paul Railroad has ordered from the local mills 24,000 tons, bringing its total of recent orders to about 60,000 tons. The sold up condition of Western mills on open hearth rails is necessitating the substitution of Bessemer rails where their use is acceptable. The size of rail orders continues to be an important part of the new business. An increased volume of light rail sales is also reported. Rerolling mills have taken the major portion of this business and in some instances without competition from the larger mills, which do not feel warranted in putting the steel into this product at current prices. Prices of railroad spikes show increasing firmness. A number of orders for T-rails for traction purposes have been placed, the total making attractive business, of which the Lorain mill was the principal seller. We quote standard railroad spikes at 1.55c. to 1.65c., base; track bolts with square nuts, 1.95c. to 2.05c., base, all in carload lots, Chicago; standard section Bessemer rails, Chicago, 1.25c., base; open hearth, 1.34c.; light rails, 25 to 45 lb., 1.20c. to 1.25c.; 16 to 20 lb., 1.25c. to 1.30c.; 12 lb., 1.30c. to 1.35c.; 8 lb., 1.35c. to 1.40c.; angle bars, 1.50c., Chicago.

Structural Material.—The division by the Illinois Central Railroad of its orders for 2500 cars disposes of the last of the prominent car inquiries in this territory for which a prompt closing has been expected. The Chicago & Alton is in the market for about 70 passenger cars and the Grand Trunk for 50 tank cars. This road will also buy 75 locomotives. The Canadian Trans-continental road is said to be in the market for additional equipment. Contracts for fabricated structurals reported during the past week aggregated less than 2000 tons. They included 157 tons awarded to Christopher & Simpson, St. Louis, for a store and office building in that city; 375 tons to the American Bridge Company for a viaduct in Kansas City; 1170 tons to the Pacific Rolling Mill Company for two piers at San Francisco, and 253 tons to the Modern Structural Steel Company for a high school building at Hibbing, Minn. We quote for Chicago delivery, mill shipment, on plain structurals, 1.43c. and from store 1.70c.

Plates.—Prices and deliveries quotable from Western mills remain without change. Eastern mills apparently are in a much better position to handle new business than are the local producers. We quote for Chicago delivery mill shipment, 1.43c. and from store 1.70c.

Bars.—The effect of the well-filled condition of the local bar iron mills is reflected in the increased activity of rolling mills in the adjoining territory. The market with reference to both steel and iron bars is increasingly firm rather than otherwise. We also note an advance in the price of hard steel bars and quote for Chicago delivery, 1.30c. An inquiry of 5000 to 10,000 tons of open-hearth billets is reported in this market. We quote as follows: Bar iron, 1.27½c. to 1.30c.; hard steel bars, 1.30c.; soft steel bars, 1.38c., and from store, soft steel bars, 1.60c., Chicago.

Sheets.—Eastern competition continues to introduce irregularities in prices for sheets. Local mills are so well filled up, however, that instead of taking new business, they would be glad to relieve their crowded condition through the forfeiture of unspecified tonnage on contracts ending this month. We quote, Chicago delivery, as follows: Carload lots, from mill, No. 28 black sheets, 2.08c. to 2.13c.; No. 28 galvanized, 3.13c. to 3.18c.; No. 10 blue annealed, 1.58c. to 1.63c. Prices from store are: No. 10, 1.95c.; No. 12, 2c.; No. 28 black, 2.30c., and No. 28 galvanized, 3.45c.

Rivets and Bolts.—Quotations for structural rivets show added strength in this market and in some instances an advance of $1 a ton is being asked. An active demand for screws and bolts continues. The manufacturers' schedule of discounts for carriage bolts has been revised and we quote, effective May 21, as follows: Carriage bolts up to ⅜ in. x 6 in., rolled thread, 80 and 15; cut thread, 80 and 7½; larger sizes, 75 and 7½; machine bolts up to ⅜ in. x 4 in., rolled thread, 80 and 20; cut thread, 80 and 12½, larger sizes, 75 and 12½; coach screws, 80 and 20; hot pressed nuts, square head, $6.30 off per cwt.; hexagon, $7.10 off per cwt. Structural rivets, ½ in. and larger, 1.78c. base, Chicago, in carload lots; boiler rivets, 0.10c. additional.

Wire Products.—The waning demand for fencing material is more pronounced with respect to manufactured fence than for barb wire. Considering that the season is well advanced, the volume of business is fairly well sustained. Evidence points to a degree of failure on the part of independent interests to secure their portion of the going business. Wire nail consumption is the most active feature in this trade. We quote as follows: Plain wire, No. 9 and coarser, base, $1.58; wire nails, $1.78; painted barb wire, $1.78 to $1.83; galvanized, $2.08; polished staples, $1.83; galvanized, $2.13, all Chicago.

Cast Iron Pipe.—The awarding of about 7000 tons of pipe to the United States Cast Iron Pipe & Foundry Company by Omaha was the leading transaction during the past week. This company also obtained the orders for 1600 tons for Kansas City. Miscellaneous business in addition added materially to the week's totals. Prices are decidedly firm and we quote as follows, per net ton, Chicago: Water pipe, 4 in., $27; 6 to 12 in., $25; 16 in. and up, $24.50, with $1 extra for gas pipe.

Old Material.—The large quantities of old material shipped into this market by the railroads and country dealers has tended to depreciate values despite steady buying by the melters. It is believed that the heaviest movement of scrap by railroads is now completed and that a readjustment on the previous firm basis will ensue. There has been a slight falling off in the demand for steel scrap. The only railroad scrap offered at this time is 600 tons by the Soo Line and 300 tons by the Chicago & Alton. We quote for delivery at buyer's works, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton.	
Old iron rails	$16.00 to $16.50
Old steel rails, rerolling	13.25 to 13.75
Old steel rails, less than 3 ft.	12.50 to 13.00
Relaying rails, standard section, subject to inspection	24.00
Old car wheels	14.00 to 14.50
Heavy melting steel scrap	11.75 to 12.25
Frogs, switches and guards, cut apart	11.75 to 12.25
Shoveling steel	11.75 to 12.25
Steel axle turnings	9.50 to 10.00

Per Net Ton.	
Iron angles and splice bars	$13.75 to $14.25
Iron arch bars and transoms	15.25 to 15.75
Steel angle bars	11.50 to 12.00
Iron car axles	19.25 to 19.75
Steel car axles	15.75 to 16.25
No. 1 railroad wrought	12.25 to 12.75
No. 2 railroad wrought	11.25 to 11.75
Steel knuckles and couplers	11.25 to 11.75
Steel springs	11.75 to 12.25
Locomotive tires, smooth	12.25 to 12.75
Machine shop turnings	7.25 to 7.75
Cast and mixed borings	6.50 to 7.00
No. 1 busheling	10.25 to 10.50
No. 2 busheling	7.50 to 8.00
No. 1 boilers, cut to sheets and rings	8.50 to 9.00
Boiler punchings	13.00 to 13.50
No. 1 cast scrap	11.50 to 12.00
Stove plate and light cast scrap	10.00 to 10.50
Railroad malleable	11.75 to 12.25
Agricultural malleable	10.50 to 11.00
Pipes and flues	9.00 to 9.50

Philadelphia

PHILADELPHIA, PA., June 18, 1912.

Finished material mills are receiving heavy specifications against expiring contracts and in some lines a larger volume of current business is reported. Prices on practically all classes of rolled products are firm and little disposition to enter new contracts for extended delivery at current prices is shown. Mills are operating at practically full capacity and deliveries are lengthening. A very fair movement in pig iron is noted, although not so active as last week, due principally to quieter demand for steel-making grades. Prices are firm with a strong, upward tendency. The old material market is quieter, although prices are pretty well maintained. The coke situation is still rather complex. A moderate movement in forward

foundry coke is reported, but makers and consumers of furnace coke are still apart as to contracts for second half.

Iron Ore.—Sales of a cargo of Spanish low phosphorus ore and several cargoes of New Brunswick ore are reported. No large business is under negotiation either in foreign or domestic ores, although the prospective increase in the productive rate of pig iron is expected to bring about some further buying. Charters from Mediterranean points are easier, several being reported entered recently at 9s. 6d. for early sailings. Importations during the week include 11,350 tons of Cuban, 3984 tons of Spanish, 12,600 tons of Newfoundland and 15,568 tons of Swedish ore.

Pig Iron.—Few large contracts have been entered recently, the bulk of the buying being confined to small and moderate quantities, which in the aggregate, however, amount to a very fair tonnage. The cast-iron pipe makers have been the most active buyers. One Delaware River melter, recently inquiring for 5000 tons, has made further purchases against that quantity. One sale of several thousand tons, one of 1500 tons and several in quantities of less than 1000 tons of off grade irons are reported. In instances close to $15, delivered, was paid, although on less favorable analysis iron $14.50 and even a shade less has been done. The better grades of pipe iron command, however, $14.75 to $15, delivered. A sale of some 600 tons of Southern low-grade iron for shipment during the next 60 days is noted on a basis of $11, Birmingham, for No. 2. In the higher foundry grades transactions have been largely in the smaller lots. The unsettled condition of the coke market is still a prominent factor in the pig-iron situation and until that situation clears producers are inclined to move cautiously regarding forward contracts. In addition to higher fuel costs, pig-iron producers are confronted with higher labor costs, as well as a scarcity of common labor. Several eastern Pennsylvania producers are now holding firmly at $15.75, delivered, for standard brands of No. 2 X foundry iron, at which figure moderate sales are made. The bulk of the sales for reasonably early delivery, however, range around $15.50, while some few brands are still available at $15.25, delivered, although these irons are becoming scarcer. Virginia foundry iron has not been very active. Moderate lot sales are reported at $13, furnace, for No. 2 X and $12.75 for No. 2 plain, for prompt and third quarter shipment, while $13.25, furnace, has been done on delivery extending into the fourth quarter. There has been little movement in what might be termed standard mill iron for rolling mill purposes, and prices are entirely nominal at $14.50 to $14.75, delivered in this district. Less activity is noted in the steel-making grades of iron. One inquiry for several thousand tons of basic for third quarter shipment is before the trade, but sellers, as a rule, refuse to meet buyers' ideas as to prices, $15.25 to $15.50, delivered, being pretty generally quoted. There has been little movement in low phosphorus pig iron, which for near future delivery is comparatively scarce. One sale of 400 tons for delivery outside the district at prices representing the market for local delivery is reported. Producers generally are pretty well sold up for near future delivery and little, if any, weakness is exhibited in prices of the usual standard brands, which for prompt and third quarter delivery are quoted as follows, delivery in buyers' yards in this district:

Eastern Pennsylvania No. 2 X foundry	$15.25 to $15.50
Eastern Pennsylvania No. 2 plain	15.00 to 15.25
Virginia No. 2 X foundry	15.80 to 16.00
Virginia No. 2 plain	15.55 to 15.75
Gray forge	14.50 to 14.75
Basic	15.25
Standard low phosphorus	19.75 to 20.00

Ferroalloys.—But few sales of either prompt or forward ferromanganese have been made to consumers in this district, although considerable business is under negotiation for Western delivery. Local sales reported are confined to one lot of 150 tons for last half delivery at $48.50, Baltimore. The scarcity of this grade of material for delivery against existing contracts and the consequent urgent demand for spot ferro have been relieved by recent arrivals, which have aggregated a considerable quantity, over 5500 tons being received at this port during the past four weeks. Very little demand for ferrosilicon is reported and prices are unchanged.

Billets.—Considerable increase in the demand for both rolling and forging billets has developed. Few inquiries, however, have been for large quantities, lots of 500, of which there have been a few, representing the maximum, and for the most part early deliveries are specified. A moderate volume of the current inquiry comes from Western consumers. Mills in this district are operating at capacity and prices are firmly maintained at $23.40 to $24.40 for rolling billets and $28.40 minimum for forging billets, delivered in buyers' yards in this district, although makers are disinclined to enter contracts for extended delivery at the basis named.

Plates.—The volume of business coming to the mills has, in a number of instances, showed a marked increase and plants are being operated to capacity, although maximum outputs are somewhat restricted by the shortage of labor. Current orders are in larger volume and cover a general range of requirements. Few large orders have been placed, although efforts to have contracts entered for forward delivery are noted. Offers of fair lots from consumers in the West are noted. Prices are firmer and the 1.40c. minimum for deliveries in this territory is well maintained, with 1.45c. more readily obtainable for miscellaneous business.

Structural Material.—A considerably larger volume of business is before the trade. Fabricators are figuring on more contracts and, while competition is sharp, prices are not so low as they were a month ago. Mills are receiving heavy specifications on contracts expiring with the month end and in several instances are now operating at full capacity. Negotiations are pending for considerable bridge work, including the widening of the Pennsylvania Railroad bridge over the Schuylkill River at Girard avenue. The Hale & Kilburn Company has let a contract for 1100 tons to the American Bridge Company for additions to its plant. Bids will be taken early in July for the additions to the Curtis Publishing Company building, requiring from 6000 to 7000 tons. The Lehigh Structural Steel Company is inquiring for 4000 tons of structural work to apply on contracts. The contract for 3500 tons for the Fairmount Hotel will probably go to the leading interest. In view of the increased activity of the mills prices of plain shapes have been firm, 1.40c., delivered here, being the minimum quotation, while for small lots, 1.45c. is generally quoted.

Sheets.—A steady demand is reported and mills in the East continue fully engaged. Current orders are usually small and for prompt delivery, but are in sufficient number to keep order books pretty well filled up. Prices are well maintained, 2.05c. to 2.10c., delivered here, being quoted for Western No. 28 gauge sheets, while Eastern mills making smooth, loose rolled sheets easily obtain ¼c. to ½c. per lb. advance.

Bars.—Little change in general conditions is reported. Purchases of iron bars are confined usually to small lots, with prices ranging from 1.30c. to 1.35c., delivered here. Some mills continue to quote slightly above the market. Specifications against contracts for steel bars continue heavy and a moderate volume of new business is moving at 1.35c., delivered.

Old Material.—The demand has been somewhat easier, although little change in prices is noted. Mills in the market will still pay $13.50, delivered, for No. 1 heavy melting steel scrap, but as the suplpy is not large only a small amount comes out at that figure. Odd lot sales of specialties, such as old steel axles and old iron rails, have been reported. A better movement in stove plate is also noted. With fair supplies on hand consumers are waiting further developments before entering the market for any marked quantity in any grade. The following range about represents the market for prompt deliveries in buyers' yards, eastern Pennsylvania and nearby points, taking a freight rate varying from 35c. to $1.35c. per gross ton.

No. 1 heavy melting steel scrap and crops	$13.50 to $14.00
Old steel rails, rerolling (nominal)	14.75 to 15.25
Low phosphorus heavy melting steel scrap	16.25 to 16.75
Old steel axles	17.50 to 18.00
Old iron axles	23.50 to 24.00
Old iron rails (nominal)	16.50 to 17.00
Old car wheels	14.00 to 14.50
No. 1 railroad wrought	15.50 to 16.00
Wrought iron pipe	12.50 to 13.00
No. 1 forge fire	12.00 to 12.50
No. 2 light iron (nominal)	7.00 to 7.50
Wrought turnings	10.50 to 11.00
Cast borings	9.50 to 10.00
Machinery cast	13.75 to 14.25
Railroad malleable (nominal)	12.00 to 12.50
Grate bars, railroad	10.50 to 11.00
Stove plate	10.50 to 11.00

Coke.—The market is still unsettled, particularly in connection with furnace coke. Some producers continue their efforts to maintain a $2.50, oven, basis for furnace coke for second half, although $2.40, ovens, can in instances be done and on some grades $2.25 is named. Purchases of spot coke have been made at prices ranging from $1.90 to $2.10, at oven, according to grade, and as long as a supply is available contracts

at the higher asking prices cannot be closed. Moderate contracts of foundry coke have been entered at prices ranging from $2.40 to $2.50, ovens. The following range of price, per net ton, is quoted for deliveries in buyers' yards in this vicinity, the inside prices representing quotations for prompt shipment:

Connellsville furnace coke	$4.10 to $4.70
Connellsville foundry coke	4.55 to 4.70
Mountain furnace coke	3.70 to 4.30
Mountain foundry coke	4.15 to 4.30

Cleveland

CLEVELAND, OHIO, June 18, 1912.

Iron Ore.—One ore firm reports several sales of small lots of non-Bessemer grades in the week, aggregating about 100,000 tons. Some of the ore was for Eastern shipment. Some other inquiries are pending for small lots, contracts for which will shortly be placed. Sales are being made at regular prices. Ore is now moving down the lakes at a very rapid rate. We quote prices at Lake Erie docks as follows: Old Range Bessemer, $3.75; Mesaba Bessemer, $3.50; old range non-Bessemer, $3.05, and Mesaba non-Bessemer, $2.85.

Pig Iron.—There is little activity in the market. A few sales of Northern foundry grades in lots of 300 tons and under are reported. Prices are firm at $13.25, Cleveland furnace, for No. 2 foundry for outside shipment. Some iron has been sold at $13.50 for No. 2 for shipment from Cleveland. A Mansfield manufacturer is in the market for 500 tons of No. 2 and 500 tons of No. 3 foundry iron for the last half. Another inquiry is from a Detroit malleable plant for 2000 tons of No. 2 Southern soft. A few other inquiries for small lots of Northern foundry grades are pending. The demand for Southern iron is light but there is some inquiry for 100 to 200 ton lots. The price is firm at $11, Birmingham, for No. 2. Northern foundries are now practically all under contract for their requirements for at least the third quarter. For prompt shipment and for the last half we quote, delivered Cleveland, as follows:

Bessemer	$15.15
Basic	13.75
Northern No. 2 foundry	$13.50 to 13.75
Southern No. 2 foundry	15.35
Gray forge	13.00
Jackson silvery, 8 per cent. silicon	17.05 to 17.55

Coke.—There is a fairly active demand for foundry grades and prices are firmer. Several contracts for Virginia foundry coke for the year from July 1 were placed during the week at $2.50. There is a complaint of a scarcity of labor and some of the Virginia producers are unable to offer spot coke. We quote 72-hr Connellsville foundry coke at $2.50 to $2.75 per net ton at the oven. Some of the producers have advanced their price from $2.50 to $2.60. The better grades of Connellsville furnace coke are quoted at $2.10 to $2.25 for spot shipment and $2.25 to $2.50 for contract. There is some inquiry for the last half, a part of this being from furnace interests that will blow in stacks shortly if they can buy their coke at satisfactory prices.

Finished Iron and Steel.—While specifications are not coming in with the rush of a few weeks ago, they are still heavy and mills are getting further behind on deliveries. Large manufacturing plants in most metal working lines are very busy and much new work is coming out. In spite of the fact that not much new building work of the larger sort is being placed, the demand for structural material is heavy. There is also a heavy demand for plates. Tank shops are large consumers. New business in most lines is rather light, being confined mostly to quite small lots. Prices are very firm and some premium business is being taken for prompt delivery. Owing to the scarcity of soft steel bars for prompt shipment, buyers are taking hard steel at soft steel prices in order to secure delivery. The demand for iron bars continues quite active and the market is firm at 1.30c., Cleveland. The demand for sheet contracts has become quite active and prices are fairly regular. Sheets are quoted at a minimum of 1.90c. for No. 28 black and 2.90c. for No. 28 galvanized for prompt shipment and for delivery until October, and $1 to $2 a ton higher for delivery until Jan. 1. Plans will be out shortly for the steel span for the new Superior avenue bridge, Cleveland, requiring about 4000 tons of steel. The Hocking Valley Railroad is planning a new dock and coal handling plant in Toledo. The Lackawanna Steel Company has taken 500 tons of standard section rails for the Toledo Railway & Light Company.

Old Material.—There is a moderate volume of buying but the market is not quite so active as in recent weeks. Prices show a slight softening tendency and some of the mills are offering 25c. a ton less for heavy steel than a week ago. However, yard dealers generally are holding quite firmly to the regular quotations or for better prices than mills are willing to pay. There is some inquiry for melting steel scrap for July delivery. The Norfolk & Western received bids Tuesday on a list of about its usual tonnage. Dealers' prices, f.o.b. Cleveland, which are unchanged, are as follows:

Per Gross Ton.	
Old steel rails, rerolling	$12.75 to $13.00
Old iron rails	14.00 to 14.50
Steel car axles	17.50 to 18.00
Heavy melting steel	12.50 to 12.75
Old car wheels	13.00 to 13.50
Relaying rails, 50 lb. and over	22.50 to 23.50
Agricultural malleable	10.50 to 11.00
Railroad malleable	12.75 to 13.00
Light bundled sheet scrap	9.50 to 10.00
Per Net Ton.	
Iron car axles	$18.50 to $19.00
Cast borings	7.25 to 7.50
Iron and steel turnings and drillings	7.50 to 7.75
Steel axle turnings	8.50 to 8.75
No. 1 busheling	10.75 to 11.00
No. 1 railroad wrought	12.00 to 12.25
No. 1 cast	11.25 to 11.75
Stove plate	9.00 to 9.50
Bundled tin scrap	11.00 to 11.50

Cincinnati

CINCINNATI, OHIO, June 18, 1912.

Pig Iron.—Although it is understood that the majority of consumers in this territory have covered for last half requirements, there is yet a steady run of small orders. The inquiry is also holding up fairly well. A Central Ohio melter will probably close this week for 500 tons each of Northern and Southern foundry iron, and from the same district is a request for prices on 400 tons of malleable. Two Michigan consumers are asking for a round tonnage of foundry iron, 1000 tons of which will doubtless go to Southern producers. A sale of 2000 tons of Lake Superior charcoal iron for last half shipment was made to a Northern Michigan manufacturer. The lower grades are scarce, especially in the South, and a local agency was able to get $10 Birmingham for 400 tons of gray forge to be shipped during the third quarter. Southern prices are strong and $11, Birmingham basis, is minimum on No. 2 foundry for prompt movement, while as high as $11.50 has been obtained on last half contracts. Furnace operators in the Hanging Rock district have also stiffened up, and $13.50, Ironton, is again the quotable figure for either prompt or last half shipment. It is believed that the high prices of coke will compel Northern producers to adhere to this quotation, although it is rumored that firm offers of $13.25 at furnace would not be turned down for shipment this month. Malleable is showing some improvement, and is now also quoted at $13.50, Ironton. A local melter is asking for prices on about 200 tons of high silicon iron. Based on freight rates of $3.25 from Birmingham and $1.20 from Ironton, we quote f.o.b. Cincinnati as follows:

Southern coke, No. 1 foundry and 1 soft	$14.75 to $15.00
Southern coke, No. 2 foundry and 2 soft	14.25 to 14.50
Southern coke, No. 3 foundry	14.00
Southern coke, No. 4 foundry	13.75
Southern gray forge	13.75
Ohio silvery, 8 per cent. silicon	17.20 to 17.70
Lake Superior coke No. 1	14.95
Lake Superior coke No. 2	14.70
Lake Superior coke No. 3	14.45
Basic, Northern	14.45
Standard Southern car wheel	25.25 to 25.50
Lake Superior charcoal	16.75 to 17.25

Coke.—A furnace in the Hanging Rock district is said to have contracted for a year's supply of 48-hr coke, about 30,000 tons in all, to come from the Pocahontas field. Pocahontas prompt furnace coke is obtainable around $2 per net ton at oven, with 10c. to 15c. added for contract business. The blowing out of two or three blast furnaces which had contracts with Connellsville producers threw a lot of coke on the market that had to be disposed of promptly, and for immediate shipment 48-hr coke is obtainable around $2 to $2.10. It is even rumored that the first named figure was slightly shaded in one transaction. However, producers appear to be adhering to contract prices of $2.25 to $2.50, which quotations we continue. The situation in the Wise County field is unchanged, so far as furnace coke is concerned, and leading brands are quoted around $2 to $2.15. The demand for foundry coke is improving, and a number of contracts were made last week. Leading 72-hr brands are quoted in all three fields at $2.50 to $2.75 per net ton at oven.

Finished Material.—The expected demand for wire nails has not developed. This is regarded by mill

agencies as due to jobbers and retailers having large stocks on hand, the lateness of the building season preventing them from getting rid of these stocks. Structural material is showing some improvement, and considerable business is under negotiation in this territory. We quote steel bars firm at 1.20c. Pittsburgh and structural material at 1.25c.

Old Material.—The market has weakened, and with few exceptions prices on different grades of scrap material are 25c. a ton lower than last week's quotations. A few dealers believe that this condition will not last very long, and that an improvement may be expected before the end of summer. The minimum figures given below represent what buyers are willing to pay for delivery in their yards, southern Ohio and Cincinnati, and the maximum quotations are dealers' prices f.o.b at yards:

Per Gross Ton.

Bundled sheet scrap	$8.75 to	$9.25
Old iron rails	12.75 to	13.25
Repaying rails, 50 lb. and up	20.00 to	21.00
Rerolling steel rails	11.00 to	11.50
Melting steel rails	10.00 to	10.50
Heavy melting steel scrap	10.00 to	10.50
Old car wheels	12.25 to	13.00

Per Net Ton.

No. 1 railroad wrought	$10.50 to	$11.00
Cast borings	6.25 to	6.75
Steel turnings	6.25 to	6.75
No. 1 cast scrap	10.75 to	11.25
Burnt scrap	7.50 to	8.00
Old iron axles	16.00 to	16.50
Locomotive tires (smooth inside)	11.75 to	12.25
Pipes and flues	7.00 to	7.50
Malleable scrap	8.50 to	9.00
Railroad tank and sheet scrap	6.50 to	7.00

Birmingham

BIRMINGHAM, ALA., June 17, 1912.

Pig Iron.—The gradually increasing strength of Southern iron is now widely conceded. The only concern which admits selling No. 2 under $11.50 is a large maker with the most iron on hand. The company has been quoting $11.25 for third quarter and $11.50 for fourth quarter for some time and still quotes these figures with rapidly depleting stocks and sales equaling its output. A furnace interest with three active stacks has nothing under $11.50 and reports selling 4500 tons for various deliveries in Southern territory covering the remainder of the year. A consumer anxious for a small lot of No. 2 spot had to pay $11.75. An offer of $12.50 for 2500 tons of special analysis No. 2 was made and 1000 tons Clifton brand were sold at that figure for car-wheel purposes by the Alabama Consolidated. This company quotes $11.50 for Etowah No. 2. Free stocks were reduced to 65,000 tons on June 1 with the majority of the makers having practically none to offer. The pipe companies are using large quantities of iron, especially the low grades. One maker continues to refrain from quoting fourth quarter. Charcoal iron is steady with two stacks operating. While Northern buyers may here and there secure some pig iron under prices quoted. Alabama iron, f.o.b. Birmingham, is sold as follows:

No. 1 foundry and No. 1 soft	$11.50 to	$11.75
No. 2 foundry and No. 2 soft	11.25 to	11.50
No. 3 foundry		10.75
No. 4 foundry		10.50
Gray forge		10.25
Basic		10.50
Charcoal iron	22.00 to	22.50

Old Material.—All lines of scrap are reported as fairly active, with an improvement in the demand for light cast and machinery. The trade is principally local and in Southern territory. Prices asked by dealers are unchanged as follows:

Wrought iron car axles	$16.00 to	$17.00
Old steel axles	14.50 to	15.50
Old iron rails		14.50
No. 1 railroad wrought	12.00 to	12.50
No. 2 railroad wrought		11.00
No. 1 country wrought	9.50 to	10.00
No. 2 country wrought	9.00 to	9.50
No. 1 machinery	8.50 to	9.00
No. 1 steel	9.50 to	10.00
Tram car wheels	10.00 to	10.50
Standard car wheels	11.50 to	12.00
Light cast and stove plate	8.00 to	8.50

Coal and Coke.—Coke is quiet, with prices $3.25 to $3.75 at the ovens. No Virginia coke is coming in, owing to the $2.50 price at the ovens. By-product coke has not affected prices. Coal is holding its own for this time of the year, with inquiries from oil and fertilizer plants and bunkers at Southern ports increasing.

Cast Iron Pipe.—There is no change in the pipe trade. All shops are working on full time with yards depleted of any considerable stock and the output moving rapidly. The tendency is to advance prices July 1. Recent advances are firmly held while waiting on what may happen if another rise in pig iron occurs. Quotations, f.o.b. cars Birmingham, are: 4 to 6 in., $23.50; 8 to 12 in., $22.50; over 12 in., average $21.50, with $1 extra far gas pipe.

Boston

BOSTON, MASS., June 18, 1912.

Old Material.—The expectation of a week ago that prices would drop almost immediately has not been realized. The market is less active than a month ago, but the change is only what may be attributed to the season. Transactions are reasonably good. Producers are showing increasing tendency to dispose of their scrap. The quotations given below are of prices offered by the large dealers to the producers and to the smaller dealers and collectors, per gross ton, carload lots, f.o.b. Boston and other New England points, taking Boston rates from eastern Pennsylvania points. In comparison with Philadelphia prices the differential for freight of $2.30 a ton is included. Mill prices are approximately 50c. a ton more than dealers' prices.

Heavy melting steel	$10.25 to	$10.75
Low phosphorus steel	11.45 to	11.95
Old steel axles	14.00 to	14.50
Old iron axles	17.00 to	18.00
Mixed shafting	13.00 to	13.50
No. 1 wrought and soft steel	10.00 to	10.50
Skeleton (bundled)	8.25 to	8.75
Wrought iron pipe	9.25 to	9.75
Cotton ties	7.75 to	8.25
No. 2 light	4.50 to	5.00
Wrought turnings	7.25 to	7.75
Cast borings	6.25 to	6.75
Machinery, cast	12.50 to	13.00
Malleable	8.75 to	9.25
Grate bars	6.00 to	6.50
Stove plate	8.00 to	8.50
Cast iron car wheels	11.75 to	12.00

St. Louis

ST. LOUIS, MO., June 17, 1912.

Business has continued to maintain a very satisfactory total, though perhaps not quite up to the totals of recent weeks. There is not the slightest indication of lowering prices in either pig iron or finished iron and steel. Collections are satisfactory.

Pig Iron.—Business was embraced altogether in small lots, but the total was reasonably good. Naturally there is no excessive buying at the present time, but the passing of the conventions is expected to be followed by renewed interest. No. 2 Southern foundry is very strong at $11 for immediate delivery and some representatives are asking $11.25. For last quarter $11.50 is the quotation made at present.

Coke.—Coke shows a weakening tendency and there is literally no quotation to be made in this market. Inquiries are referred to the ovens. Orders are in carload lot quantities. There is nothing to report in by-product coke.

Finished Iron and Steel.—The finished product market is in much the same condition as last reported. The volume of orders keeps well up and the prices are well maintained with intimations of possible increases. In standard rails the Chicago & Eastern Illinois placed a large order in addition to the one last reported. The other negotiations, of which about 30,000 tons still continue in the air, have not materialized. In structural material the orders have been good and deliveries are no easier to say the least. The only new work of size being figured is 500 tons for the Midland Hotel and 500 tons for the Carpenter building, St. Louis. Plate deliveries are becoming more extended. The wagon makers are not taking bars quite so freely as normally, but there are evidences that heavy purchases will be made shortly because of the good crop conditions in this section. Light rails are quiet, with little movement. Track fastenings continue in sharp request, with deliveries growing more extended.

Old Material.—The dealers in scrap are still firm in their attitude and prices are well held with prospects of some advances. No new lists came out during the week. The steel concerns are still seeking bargains, but the rolling mills are doing very little in this market just now. The differential between this market and others still maintains to the benefit of the local dealers in their independence. We quote dealers' prices, f.o.b. St. Louis, as follows:

Per Gross Ton.

Old iron rails	$14.00 to $14.50
Old steel rails, rerolling	12.00 to 12.50
Old steel rails, less than 3 ft.	12.00 to 12.50
Relaying rails, standard section, subject to inspection	22.00 to 22.50
Old car wheels	13.50 to 14.00
Heavy melting steel scrap	12.00 to 12.50
Frogs, switches and guards cut apart	12.00 to 12.50

Per Net Ton.

Iron fish plates	$13.00 to $13.50
Iron car axles	18.00 to 18.50
Steel car axles	16.00 to 16.50
No. 1 railroad wrought	12.50 to 13.00
No. 2 railroad wrought	11.75 to 12.25
Railway springs	10.50 to 11.00
Locomotive tires, smooth	12.50 to 13.00
No. 1 dealers' forge	8.50 to 9.00
Mixed borings	6.75 to 7.25
No. 1 busheling	9.50 to 10.00
No. 1 boi'ers, cut to sheets and rings	8.00 to 8.50
No. 1 cast scrap	11.00 to 11.50
Stove plate and light cast scrap	8.50 to 9.00
Railroad malleable	10.00 to 10.50
Agricultural malleable	8.50 to 9.00
Pipes and flues	8.00 to 8.50
Railroad sheet and tank scrap	8.00 to 8.50
Railroad grate bars	9.00 to 9.50
Machine shop turnings	7.50 to 8.00

San Francisco

SAN FRANCISCO, CAL., June 13, 1912.

Increased activity is noted for the beginning of June, the jobbing movement being heavier in nearly all lines. The most interesting feature is the heavy demand for merchant pipe brought about by the recent advance. Local prices in all lines are well maintained. Coast interests generally are gaining more confidence in the underlying firmness of the market, and accordingly show somewhat less hesitation in buying for future needs.

Bars.—The movement of soft steel bars continues on about the same scale as last month. Small consumers throughout the state are buying freely, and the current requirements of the larger manufacturing interests are comparatively heavy. Merchants' specifications are coming out steadily, and new orders are fairly numerous. Reinforcing bars, however, receive more attention than soft steel, though no very large single orders have been placed in the last fortnight. Several important inquiries are in sight. The Pacific Coast Steel Company is furnishing about 3,000 tons for piers 30 and 32, this city and bids for pier 28 will be opened June 27. Reinforcing bars in carload lots are quoted at 2c. Jobbing prices on bars from store, San Francisco, are 2.25c. for soft steel and 2.15c. for iron.

Structural Material.—Official figures on building activities in the Coast cities are fairly encouraging. The apparent activity, however, is not reflected in the letting of steel contracts. This is due in part to the use of reinforced concrete for some of the more important buildings recently figured. Other large projects on which figures have been taken have been temporarily withdrawn from the market. Some structural steel will be used in pier 28, bids for which will be opened this month. The Mortensen Construction Company has the contract for the steel for the Levy building on O'Farrell street at about $12,000, and about 100 tons have been let for the Oakland Presbyterian church. A new Methodist church in Oakland, and a church adjoining the Mission Dolores, this city, will also be of steel-frame construction. Plans are under way for a steel-frame hotel in Oakland and plans have been approved for the Oakland municipal auditorium. A hotel is to be built on Geary street near Mason, this city, to cost $200,000. The Ralston Iron Works, San Francisco, has a contract for about 200 tons for a hotel at Stockton, Cal.

Rails.—Several merchants are selling a large amount of light rails. Small orders for standard sections are quite numerous, and some rather large purchases have been made by interurban lines. Several additional inquiries from such sources are expected within the next six weeks.

Sheets.—Jobbing demand is extremely active, both locally and in the outside trade, and specifications against contracts are large. New orders are fairly numerous, and some contracts are being placed for third-quarter delivery, the apparent tendency being to provide amply for all probable requirements.

Plates.—While specifications are coming out fairly well from tank manufacturers, there are few inquiries for large tank construction. The principal feature is the letting of a contract for 6 of 12 projected tanks of 37,000 bbl. each for an oil refinery near Martinez, Cal. The Portland Gas & Coke Company is commencing work on a large gas plant at Linnton, Ore.

Merchant Pipe.—The advance in prices the first of the month brought out an extremely heavy buying movement from small consuming trades, local merchants permitting their customers to place large orders at the old prices. Jobbing prices have since been advanced, and as the requirements of the small trade are well covered, trading will probably be quiet for several weeks. Merchants are still buying freely at the advance, and in some quarters there is less conservatism in providing for future needs. Mill representatives usually open their books for third-quarter business about this time, but have not yet done so. A slight improvement is noted in demand for oil well supplies, though nothing new is coming out in the way of line pipe work.

Cast Iron Pipe.—The Los Angeles order for 1740 tons was placed with J. W. Blair, San Francisco, representing the Lynchburg Foundry Company, and the Modesto contract went to the United States Cast Iron Pipe & Foundry Company. Most of the current business is in small lots, but a fair aggregate tonnage is maintained. The city of San Jose, Cal., is in the market for a small lot of extra heavy 8 and 10-in. pipe. The city of Vancouver, B. C., is taking bids this week for 4,000 ft. of 18-in. flexible joint cast-iron pipe, in addition to 10,000 ft. of 24-in. steel pipe.

Pig Iron.—The comparative scarcity of foreign iron on the coast is encouraging melters to buy Southern iron, and there is a little more movement than for some time past. No. 2 Southern foundry iron is now held at about $22, f.o.b. San Francisco. Some favored brands of English iron have recently been sold from store at $24.50. There is no movement of Chinese or Continental iron at present.

Old Material.—Cast iron scrap is still rather quiet, though a fair aggregate tonnage is moving on small orders. No large sales of steel melting scrap have been closed this month, but a heavy tonnage is being shipped out on former orders, and prices are firmly held. Prices are as follows: Cast iron scrap, per net ton, $14; steel melting scrap, per gross ton, $11.50 to $12; wrought scrap, per net ton, $12.50 to $15; re-rolling rails, per net ton, $11.

Rolph, Mills & Co., Metropolis Bank Building, San Francisco, are now handling Birmingham, Ala., pig iron on the Coast. They are also selling pig iron for the Noble Electric Steel Company.

Buffalo

BUFFALO, N. Y., June 18, 1912.

Pig Iron.—The total of sales for the week in this district was about 12,000 tons, of all grades, with inquiries amounting in the aggregate to a considerably larger tonnage still under negotiation. This last includes about 7,000 tons foundry iron and malleable for an air brake company and an inquiry from New England for 5000 tons of No. 2 X. One order for 1000 tons of malleable is reported placed at $14.25 f.o.b. furnace. Aside from the tonnage under negotiation no large amount of buying is anticipated during the next few weeks beyond emergency requirements. One furnace interest announces that it is entirely sold up to the end of the third quarter and is not quoting on fourth quarter deliveries. Shipments on contracts are very heavy and there is a tendency toward higher prices. The strength of the market for coke is having its effect on pig iron prices, the added cost of coke, if producers securing the contract prices they are asking, raising the producing cost of pig approximately 75 cents per ton. For current and last half delivery we quote as follows f.o.b. Buffalo:

No. 1 X foundry	$14.25 to $14.75
No. 2 X foundry	14.00 to 14.25
No. 2 plain	14.00
No. 3 foundry	13.75 to 14.00
Gray forge	13.50 to 13.75
Malleable	14.25 to 14.50
Basic	14.25 to 14.50
Charcoal according to brand and analysis	15.75 to 17.50

Coke.—Prices have again stiffened from the sag of the middle of last week when spot delivery coke was obtainable at a concession. At present $2.35 for furnace and $2.75 for foundry coke are the ruling prices on contract.

Finished Iron and Steel.—Specifications on contracts continue to be received in good volume to clean up old contracts expiring June 30. Some inquiry is coming in for fourth quarter business and it is expected that considerable business for that delivery will be closed in the next two weeks. Prices continue very firm and deliveries on plates are more extended, while

on bars they are a little easier. In wire products the market is strong, with a good healthy demand. On carload lots $1.40 base is being maintained. Mills are busy, with deliveries running four or five weeks behind. The cold-rolled steel situation is strong at the new prices effective last week. Good business is noted in reinforcing bar material. The Turner Construction Company has received contract for an extensive addition to the Hooker Electrochemical Company's plant at Niagara Falls and for a six-story warehouse for the Keystone Warehouse Company, Buffalo, both of which will require large quantities of reinforcing steel. In fabricated structural lines the market is quieter than last week, but nevertheless shows a fair volume of business coming out. A good many building projects are under way. Bids will be taken next week for a six-story mercantile building at Delaware avenue and Chippewa street, Buffalo, for Edwin E. Klopp, requiring 500 tons of steel. Bids will also soon be received for steel for plant addition for the Jewell Steel & Malleable Company, steel for the Riverside Methodist Church, Buffalo, and for a public school at Sloan, N. Y., each taking about 100 tons, and for a city hall building and jail at Lackawanna, N. Y., 240 tons. Plans are being completed for remodeling and extending the Erie County jail, Buffalo, and bids will soon be asked for steel work and cells which will require a considerable tonnage. The George Kellogg Structural Company was low bidder for the fabrication and erection of steel for machine shop to be erected by the Howard Iron Works, Buffalo. The Buffalo Bridge Company has closed contracts to furnish steel and do the erecting for the Normal Park Methodist Church, the Robb Building on Connecticut street, the Hamilton Building on William street and the Y. M. C. A. Building, Batavia, N. Y.

Old Material.—The market shows some improvement, there being considerable demand from outside sources, principally from the Pittsburgh district. That from local consumers is light in comparison, but better than for some weeks past. Prices are stiffly held by dealers, who anticipate heavier consumption in the near future. We quote as follows per gross ton f.o.b. Buffalo:

Heavy melting steel	$12.75 to $13.25
Low phosphorus steel	15.75 to 16.00
No. 1 railroad wrought	14.00 to 14.75
No. 1 railroad and machinery cast scrap	13.50 to 14.00
Old steel axles	16.50 to 17.25
Old iron axles	21.00 to 21.50
Old car wheels	13.00 to 13.50
Railroad malleable	11.50 to 12.25
Boiler plate, sheared	13.75 to 14.25
Locomotive grate bars	11.00 to 11.25
Wrought pipe	9.50 to 10.00
Tank iron	10.00 to 10.25
Wrought iron and soft steel turnings	8.25 to 8.50
Clean cast borings	7.25 to 7.50

British Buying of American Steel

Sales Reported of Blooms, Skelp and Ship Plates—Tin Plate Competition Lessening

(By Cable)

MIDDLESBROUGH, England, June 19, 1912.

The market is firm but quiet, both in pig iron and finished materials. It is still difficult to obtain prompt pig iron except from public stores. Connal's stocks are 328,430 tons against 334,000 tons last week.

Semi-finished steel is quite firm. Some consumers are still uncovered. Some fair sales of American blooms and billets have been made; also a sale of 5,000 tons of American skelp (tube strip) to Glasgow. A sale of ship plates by an American producer is reported. There is a lessening of American tin plate competition. We quote as follows:

Cleveland pig iron warrants (closing Tuesday), 54s. 1d., the same as one week and two weeks previous.

No. 3 Cleveland pig iron, maker's price, f.o.b. Middlesbrough, 54s. 6d.

Steel sheet bars (Welsh) delivered at works in Swansea Valley, £5 17s. 6d.

German 2-in. billets, f.o.b. Antwerp, 100s.

German basic steel bars, f.o.b. Antwerp, £5 17s.

Steel bars, export, f.o.b. Clyde, £7 15s.

Steel joists, 15-in. export, f.o.b. Hull or Grimsby, £6 17s. 6d.

Steel ship plates, Scotch, delivered local yard, £7 17s. 6d.

Steel black sheets, No. 28, export, f.o.b. Liverpool, £9 5s.

Steel rails, export, f.o.b. works port, £6 7s. 6d. to £6 10s.

Tin plates, cokes, 14 x 20, 112 sheets, 108 lb., f.o.b. Wales, 14s. 7½d., October-December.

The German Iron Market

Semi-Finished Material Still Very Active—Some Record Approaching Figures

BERLIN, June 6, 1912.

The previous firmness of the iron market appears to be fully maintained and the general course of business remains very satisfactory. Prices still continue to be moved up by dealers' organizations. The association of dealers in Baden has just raised bars 5 marks, but a meeting of the West German Iron Dealers' Cartels, held at Düsseldorf several days ago, was unable to reach an agreement to make a general advance, but left it to the various affiliated organizations to decide. The export price of band iron was raised 2.50 marks to take effect at once.

On the other hand it was reported from Düsseldorf two days ago that the bar trade had grown sluggish and that makers were in the market at 2 marks below the last quoted prices. This news had a decidedly dampening effect upon the stock market. According to later news from Dortmund, however, it is said that none of the works is offering bars at cut prices, and that if any reduction has been made it could only have been by dealers closing out stock bought at cheaper prices than now prevail. The mills, it is added, are still actively employed on bars and have no occasion to sell under the present average price of 122 marks, which is easily obtainable. There has been no let up in the active run of specifications on bars and mills continue to stipulate six to eight weeks for delivery. Favorite brands of bars, according to one review of the trade, bring as much as 125 marks. The export trade has recently been unusually active.

Not a little dissatisfaction has arisen among consumers of semi-finished material and wire mills on account of the advance recently made in semi-finished steel and the reduction of the export drawback. They have called a meeting to protest. The movement is led by the wire mills and is participated in by the rolling mills. At the next meeting of the Union an attempt will also be made to modify its recent raise of "B-goods" for May and June. The reason given is that the increase is the chief hindrance to the projected organization of the various sections of the finished steel industries. It is not believed, however, that the Union will reconsider its action.

At a meeting of the Siegerland Ore Association held this week it was stated that sales in April had amounted to 190,000 tons, or about 11,000 tons more than the production. The mine owners, however, still complain that prices for ores are too low, being about 2 marks a ton below the level reached in previous periods of great prosperity, whereas the expense of mining has increased as the mines have reached lower depths.

Iron ore imports in May amounted to 947,600 tons, as against 843,000 tons for May, 1911. The export trade figures for May, so far as published, are as follows; Pig iron, 88,486 tons, against 80,160 tons a year ago; ingots, blooms, billets, etc., 44,225 tons, against 37,463; beams, 41,396 tons, against 29,149; steel rails, 42,980 tons, against 51,704; ties, 4,433 tons, against 6,106.

The April shipments of "B-goods" by the Union companies reached 595,914 tons—a figure never exceeded except in March and October, 1911, when the movement was only slightly larger. The April shipments of bars, plates and castings and forgings established new records in those goods.

The leading event of the week in company finance was the announcement of an increase of capital by the Deutch-Luxemburg Company by 30,000,000 marks, bringing its total capital up to 130,000,000 marks. Only two years ago the company increased its capital from 63,500,000 marks to 100,000,000 marks in order to amalgamate the old Dortmunder Union, and it is largely to pay for improvements in the works of the latter concern that the present capital increase is undertaken. This increase makes the Deutsch-Luxemburg the third largest iron company in Germany, ranking next to Krupps and Gelsenkirchen. It is well known in the American trade as holding the German patents for Grey beams.

The news from Belgium this week has been of a somewhat mixed character. In the first place it was announced on Saturday that the export prices of the lighter grades of sheet steel had been reduced 1 to 2 shillings, but on the same day a further advance of

semi-finished material by 1 shilling was reported. Today a further Brussels dispatch reports a rise of the home prices of pig by 2 francs. The situation in northern France is also evidently still strong, as the pig iron syndicate at Longwy three days ago raised the price of pig by 9 marks a ton. According to a Brussels dispatch the negotiations for the renewal of the international rail cartel will be taken up again at an early date. It is added that a number of points have already been settled, and it is believed that a prolongation for five years will be carried through.

New York

NEW YORK, June 19, 1912.

Pig Iron.—Inquiry has increased in the past week and there is now pending from 20,000 to 25,000 tons of pig iron, the inquiries coming chiefly from New York State, Connecticut and New Jersey. One Connecticut company asks for 5000 tons and a railroad supply manufacturer in New York State for 7000 tons. Deliveries late in the year are called for in most cases, one company asking that deliveries be "as far forward as possible." It is assumed that most melters of iron have covered for the third quarter, but a number of those who are in the market, including firms which have asked for 500 tons, 1500 tons and 1750 tons respectively, and in several cases for lots under 500 tons, will want delivery of part of the iron in the third quarter. Eastern Pennsylvania furnaces seem to be a trifle firmer, and in a few cases $15 at furnace for No. 2 X has been realized. For iron out of Buffalo $14 is more commonly the basis for No. 2 X, some sellers who were willing to take $13.75 a week ago now quoting 25 cents higher. There is almost constant buying by pipe works in the East. The labor situation is indicated by demands at several iron mines in New Jersey for higher wages and at two properties a 10 per cent. advance has been given. At one mine where the men went on strike it was decided to discontinue operations and only a small force is at work, sufficient to man the pumps and conserve the property. Many of the workers at this mine obtained employment at another, where the men had been discharged after making a demand and refusing to continue at work pending its adjustment. Blast furnace labor at three furnaces in Eastern Pennsylvania and one in New Jersey has received an advance in the past week. We quote as follows for Northern iron at tidewater: No. 1 foundry, $15.50 to $15.75; No. 2 X, $15.25 to $15.50; No. 2 plain, $14.75 to $15. Southern iron is quoted at $15.50 to $15.75 for No. 1 foundry and $15.25 to $15.50 for No. 2 foundry.

Cast Iron Pipe.—A large public letting will take place next week in Washington, D. C., involving 2745 tons. Business appears to be a little brisker than in recent weeks. While it is not denied that carload lots of 6-in. have been obtained at about $21, tidewater, the more general quotations remain at $22 to $23 per net ton.

Finished Iron and Steel.—The market is quiet. The matter of making deliveries and the shortage of labor are the special problems. In other words, activity is transferred from the sales offices to the mills. The diminished amount of recent new business with some mills is shown in the fact that deliveries are not so extended. Prices are decidedly firm, but rumors that structural shapes for spot shipment brought equivalent to 1.30c., Pittsburgh, were not substantiated. There is a very general feeling that the future has a good deal in store, particularly from railroad buying, though this is expected to wait until the result of the November elections can be anticipated. Some jobbers have reported a falling off in demand, but this does not appear to be general. One indication of the general strength is the increasing number of complaints because mills have canceled unused specifications. Even some railroads are taking their maximum specified quantities, though these are greater than their immediate needs. Outside of the two or three special cases reported last week, bar iron is strong along with the rest of the market. One large interest took during the last month more than its capacity at prices about 1.25c. at mill. The immediate prospects of car buying are not great, notwithstanding exaggerated estimates lately made. A good deal of the steel car business at present is in passenger cars and the Lackawanna is likely to buy 10, the Seaboard Air Line 20 and the Chicago & Alton 10. The Southern Railroad is considering freight and passenger cars and the Grand Trunk is reported as a possible early buyer. An interesting point is that the Baltimore & Ohio may buy the steel under-framework for as many as 15,000 cars, this business to be distributed over a considerable period of time and the substitution of the frames to be undertaken at the company's own shops. In structural work the largest new proposition is probably the 2000 tons additional terminal work for the New York Central, on which bids are to be taken next week. A 1000-ton loft building on West Forty-sixth street, 500 tons for the expansion of the Prince George Hotel and 400 tons for a number of bridges for the New York Central, Beach Creek Division, are numbered among pending jobs. Of contracts awarded may be mentioned the following: Hotel, Seventh avenue and 124th to 125th street, 1400 tons, to the Lehigh Valley Structural Steel Company, Allentown, Pa.; Murphy Hotel, Richmond, Va., 1500 tons, to the Virginia Bridge & Iron Company; bridge work, Boston & Albany, 350 tons, to the Pennsylvania Steel Company; New York Central terminal work, 300 tons, to Jones & Laughlin Steel Company; a number of bridges for the New Haven, 300 tons, part to the American Bridge Company and part to the Penn Bridge Company; a number of bridges for the Lehigh Valley, including 400 tons to the American Bridge Company; loft East Twenty-fifth street, 1000 tons, to Hay Foundry & Iron Works; loft East Thirty-second street, 550 tons, to the Hedden Iron Construction Company. The Havana Central is understood to have placed 100 cars with the Standard Steel Car Company, and other car business closed includes 1500 for the Central of New Jersey, the company taking 500 more than the thousand on which it inquired; 64 passenger cars for the Norfolk & Western, and 2500 cars for the Illinois Central, 1000 going to the American Car & Foundry Company, 750 to the Pressed Steel Car Company and 750 to the Standard Steel Car Company. Quotations are: Steel bars, 1.36c. to 1.41c.; plain structural material and plates, 1.41c. to 1.46c.; bar iron, 1.32c. to 1.37c., all New York. Plain material from store, 1.75c. to 1.85c.

Old Material.—There is some variation in prices paid for heavy melting steel scrap in Eastern Pennsylvania, some mills having ample supplies, and, in fact, limiting shipments, while others are bidding for material and are running with only moderate stocks. Little interest is shown in scrap for foundry use and in some grades of wrought scrap prices are easier. A New Jersey rolling mill has started up after two years' idleness, but its requirements of scrap are not large. We reduce quotations on heavy cast scrap and wrought pipe. On a number of kinds of scrap the quotations below, which are dealers' prices per gross ton, New York and vicinity, are nominal:

Old girder and T rails for melting	$11.00 to $11.25
Heavy melting steel scrap	11.00 to 11.25
Relaying rails	20.50 to 21.00
Rerolling rails (nominal)	12.50 to 13.00
Iron car axles	20.50 to 21.00
Old steel car axles	15.50 to 16.00
No. 1 railroad wrought	13.25 to 13.75
Wrought iron track scrap	12.00 to 12.50
No. 1 yard wrought, long	11.50 to 12.00
No. 1 yard wrought, short	10.75 to 11.25
Light iron	5.00 to 5.25
Cast borings	7.00 to 7.25
Wrought turnings	8.25 to 8.50
Wrought pipe	9.75 to 10.00
Old car wheels	13.50 to 14.00
No. 1 heavy cast, broken up	11.00 to 11.50
Stove plate	8.75 to 9.00
Locomotive grate bars	8.75 to 9.25
Malleable cast	10.00 to 10.50

Ferroalloys.—The market for 80 per cent. ferromanganese is quiet but firm at $48.50, Baltimore, for future delivery. In the last week there have been sales at around $50, Baltimore, for prompt shipment of carload lots, and spot could probably command even higher prices. Ferrosilicon is quoted at $70, Pittsburgh, for 50 per cent. material in large lots. For carload lots up to $72.50 is asked. The market is firm with little activity.

Metal Market

NEW YORK, June 19, 1912.

The Week's Prices

Cents Per Pound for Early Delivery.

	Copper, New York.			Lead		Spelter	
June.	Lake.	Electrolytic.	Tin, New York.	New York.	St. Louis.	New York.	St. Louis.
13	17.50	17.37½	48.50	4.50	4.37½	6.90	6.75
14	17.50	17.37½	48.25	4.50	4.37½	6.95	6.80
15	17.50	17.37½	.....	4.50	4.37½	6.95	6.80
17	17.50	17.37½	48.35	4.50	4.37½	6.95	6.80
18	17.62½	17.50	48.60	4.50	4.37½	7.05	6.90
19	17.62½	17.50	48.50	4.50	4.37½	7.05	6.90

Copper maintains its strong position at higher prices. There is less activity in tin at higher prices

on bars they are a little easier. In wire products the market is strong, with a good healthy demand. On carload lots $1.40 base is being maintained. Mills are busy, with deliveries running four or five weeks behind. The cold-rolled steel situation is strong at the new prices effective last week. Good business is noted in reinforcing bar material. The Turner Construction Company has received contract for an extensive addition to the Hooker Electrochemical Company's plant at Niagara Falls and for a six-story warehouse for the Keystone Warehouse Company, Buffalo, both of which will require large quantities of reinforcing steel. In fabricated structural lines the market is quieter than last week, but nevertheless shows a fair volume of business coming out. A good many building projects are under way. Bids will be taken next week for a six-story mercantile building at Delaware avenue and Chippewa street, Buffalo, for Edwin E. Klopp, requiring 500 tons of steel. Bids will also soon be received for steel for plant addition for the Jewell Steel & Malleable Company, steel for the Riverside Methodist Church, Buffalo, and for a public school at Sloan, N. Y., each taking about 100 tons, and for a city hall building and jail at Lackawanna, N. Y., 240 tons. Plans are being completed for remodeling and extending the Erie County jail, Buffalo, and bids will soon be asked for steel work and cells which will require a considerable tonnage. The George Kellogg Structural Company was low bidder for the fabrication and erection of steel for machine shop to be erected by the Howard Iron Works, Buffalo. The Buffalo Bridge Company has closed contracts to furnish steel and do the erecting for the Normal Park Methodist Church, the Robb Building on Connecticut street, the Hamilton Building on William street and the Y. M. C. A. Building, Batavia, N. Y.

Old Material.—The market shows some improvement, there being considerable demand from outside sources, principally from the Pittsburgh district. That from local consumers is light in comparison, but better than for some weeks past. Prices are stiffly held by dealers, who anticipate heavier consumption in the near future. We quote as follows per gross ton f.o.b. Buffalo:

Heavy melting steel	$12.75 to $13.25
Low phosphorus steel	15.75 to 16.00
No. 1 railroad wrought	14.00 to 14.75
No. 1 railroad and machinery cast scrap	13.50 to 14.00
Old steel axles	16.50 to 17.25
Old iron axles	21.00 to 21.50
Old car wheels	13.00 to 13.50
Railroad malleable	11.50 to 12.25
Boiler plate, sheared	13.75 to 14.25
Locomotive grate bars	11.00 to 11.25
Wrought pipe	9.50 to 10.00
Tank iron	10.00 to 10.25
Wrought iron and soft steel turnings	8.25 to 8.50
Clean cast borings	7.25 to 7.50

British Buying of American Steel

Sales Reported of Blooms, Skelp and Ship Plates—Tin Plate Competition Lessening

(By Cable)

MIDDLESBROUGH, England, June 19, 1912.

The market is firm but quiet, both in pig iron and finished materials. It is still difficult to obtain prompt pig iron except from public stores. Connal's stocks are 328,430 tons against 334,000 tons last week.

Semi-finished steel is quite firm. Some consumers are still uncovered. Some fair sales of American blooms and billets have been made; also a sale of 5,000 tons of American skelp (tube strip) to Glasgow. A sale of ship plates by an American producer is reported. There is a lessening of American tin plate competition. We quote as follows:

Cleveland pig iron warrants (closing Tuesday), 54s. 1d., the same as one week and two weeks previous.

No. 3 Cleveland pig iron, maker's price, f.o.b. Middlesbrough, 54s. 6d.

Steel sheet bars (Welsh) delivered at works in Swansea Valley, £5 17s. 6d.

German 2-in. billets, f.o.b. Antwerp, 100s.

German basic steel bars, f.o.b. Antwerp, £5 17s.

Steel bars, export, f.o.b. Clyde, £7 15s.

Steel joists, 15-in. export, f.o.b. Hull or Grimsby, £6 17s. 6d.

Steel ship plates, Scotch, delivered local yard, £7 17s. 6d.

Steel black sheets, No. 28, export, f.o.b. Liverpool, £9 5s.

Steel rails, export, f.o.b. works port, £6 7s. 6d. to £6 10s.

Tin plates, cokes, 14 x 20, 112 sheets, 108 lb., f.o.b. Wales, 14s. 7½d., October-December.

The German Iron Market

Semi-Finished Material Still Very Active—Some Record Approaching Figures

BERLIN, June 6, 1912.

The previous firmness of the iron market appears to be fully maintained and the general course of business remains very satisfactory. Prices still continue to be moved up by dealers' organizations. The association of dealers in Baden has just raised bars 5 marks, but a meeting of the West German Iron Dealers' Cartels, held at Düsseldorf several days ago, was unable to reach an agreement to make a general advance, but left it to the various affiliated organizations to decide. The export price of band iron was raised 2.50 marks to take effect at once.

On the other hand it was reported from Düsseldorf two days ago that the bar trade had grown sluggish and that makers were in the market at 2 marks below the last quoted prices. This news had a decidedly dampening effect upon the stock market. According to later news from Dortmund, however, it is said that none of the works is offering bars at cut prices, and that if any reduction has been made it could only have been by dealers closing out stock bought at cheaper prices than now prevail. The mills, it is added, are still actively employed on bars and have no occasion to sell under the present average price of 122 marks, which is easily obtainable. There has been no let up in the active run of specifications on bars and mills continue to stipulate six to eight weeks for delivery. Favorite brands of bars, according to one review of the trade, bring as much as 125 marks. The export trade has recently been unusually active.

Not a little dissatisfaction has arisen among consumers of semi-finished material and wire mills on account of the advance recently made in semi-finished steel and the reduction of the export drawback. They have called a meeting to protest. The movement is led by the wire mills and is participated in by the rolling mills. At the next meeting of the Union an attempt will also be made to modify its recent raise of "B-goods" for May and June. The reason given is that the increase is the chief hindrance to the projected organization of the various sections of the finished steel industries. It is not believed, however, that the Union will reconsider its action.

At a meeting of the Siegerland Ore Association held this week it was stated that sales in April had amounted to 190,000 tons, or about 11,000 tons more than the production. The mine owners, however, still complain that prices for ores are too low, being about 2 marks a ton below the level reached in previous periods of great prosperity, whereas the expense of mining has increased as the mines have reached lower depths.

Iron ore imports in May amounted to 947,600 tons, as against 843,000 tons for May, 1911. The export trade figures for May, so far as published, are as follows; Pig iron, 88,486 tons, against 80,160 tons a year ago; ingots, blooms, billets, etc., 44,225 tons, against 37,463; beams, 41,396 tons, against 29,149; steel rails, 42,980 tons, against 51,704; ties, 4,433 tons, against 6,106.

The April shipments of "B-goods" by the Union companies reached 595,914 tons—a figure never exceeded except in March and October, 1911, when the movement was only slightly larger. The April shipments of bars, plates and castings and forgings established new records in those goods.

The leading event of the week in company finance was the announcement of an increase of capital by the Deutch-Luxemburg Company by 30,000,000 marks, bringing its total capital up to 130,000,000 marks. Only two years ago the company increased its capital from 63,500,000 marks to 100,000,000 marks in order to amalgamate the old Dortmunder Union, and it is largely to pay for improvements in the works of the latter concern that the present capital increase is undertaken. This increase makes the Deutsch-Luxemburg the third largest iron company in Germany, ranking next to Krupps and Gelsenkirchen. It is well known in the American trade as holding the German patents for Grey beams.

The news from Belgium this week has been of a somewhat mixed character. In the first place it was announced on Saturday that the export prices of the lighter grades of sheet steel had been reduced 1 to 2 shillings, but on the same day a further advance of

semi-finished material by 1 shilling was reported. Today a further Brussels dispatch reports a rise of the home prices of pig by 2 francs. The situation in northern France is also evidently still strong, as the pig iron syndicate at Longwy three days ago raised the price of pig by 9 marks a ton. According to a Brussels dispatch the negotiations for the renewal of the international rail cartel will be taken up again at an early date. It is added that a number of points have already been settled, and it is believed that a prolongation for five years will be carried through.

New York

NEW YORK, June 19, 1912.

Pig Iron.—Inquiry has increased in the past week and there is now pending from 20,000 to 25,000 tons of pig iron, the inquiries coming chiefly from New York State, Connecticut and New Jersey. One Connecticut company asks for 5000 tons and a railroad supply manufacturer in New York State for 7000 tons. Deliveries late in the year are called for in most cases, one company asking that deliveries be "as far forward as possible." It is assumed that most melters of iron have covered for the third quarter, but a number of those who are in the market, including firms which have asked for 500 tons, 1500 tons and 1750 tons respectively, and in several cases for lots under 500 tons, will want delivery of part of the iron in the third quarter. Eastern Pennsylvania furnaces seem to be a trifle firmer, and in a few cases $15 at furnace for No. 2 X has been realized. For iron out of Buffalo $14 is more commonly the basis for No. 2 X, some sellers who were willing to take $13.75 a week ago now quoting 25 cents higher. There is almost constant buying by pipe works in the East. The labor situation is indicated by demands at several iron mines in New Jersey for higher wages and at two properties a 10 per cent. advance has been given. At one mine where the men went on strike it was decided to discontinue operations and only a small force is at work, sufficient to man the pumps and conserve the property. Many of the workers at this mine obtained employment at another, where the men had been discharged after making a demand and refusing to continue at work pending its adjustment. Blast furnace labor at three furnaces in Eastern Pennsylvania and one in New Jersey has received an advance in the past week. We quote as follows for Northern iron at tidewater: No. 1 foundry, $15.50 to $15.75; No. 2 X, $15.25 to $15.50; No. 2 plain, $14.75 to $15. Southern iron is quoted at $15.50 to $15.75 for No. 1 foundry and $15.25 to $15.50 for No. 2 foundry.

Cast Iron Pipe.—A large public letting will take place next week in Washington, D. C., involving 2745 tons. Business appears to be a little brisker than in recent weeks. While it is not denied that carload lots of 6-in. have been obtained at about $21, tidewater, the more general quotations remain at $22 to $23 per net ton.

Finished Iron and Steel.—The market is quiet. The matter of making deliveries and the shortage of labor are the special problems. In other words, activity is transferred from the sales offices to the mills. The diminished amount of recent new business with some mills is shown in the fact that deliveries are not so extended. Prices are decidedly firm, but rumors that structural shapes for spot shipment brought equivalent to 1.30c., Pittsburgh, were not substantiated. There is a very general feeling that the future has a good deal in store, particularly from railroad buying, though this is expected to wait until the result of the November elections can be anticipated. Some jobbers have reported a falling off in demand, but this does not appear to be general. One indication of the general strength is the increasing number of complaints because mills have canceled unused specifications. Even some railroads are taking their maximum specified quantities, though these are greater than their immediate needs. Outside of the two or three special cases reported last week, bar iron is strong along with the rest of the market. One large interest took during the last month more than its capacity at prices about 1.25c. at mill. The immediate prospects of car buying are not great, notwithstanding exaggerated estimates lately made. A good deal of the steel car business at present is in passenger cars and the Lackawanna is likely to buy 10, the Seaboard Air Line 29 and the Chicago & Alton 10. The Southern Railroad is considering freight and passenger cars and the Grand Trunk is reported as a possible early buyer. An interesting point is that the Baltimore & Ohio may buy the steel under-framework for as many as 15,000 cars, this business to be distributed over a considerable period of time and the substitution of the frames to be undertaken at the company's own shops. In structural work the largest new proposition is probably the 2000 tons additional terminal work for the New York Central, on which bids are to be taken next week. A 1000-ton loft building on West Forty-sixth street, 500 tons for the expansion of the Prince George Hotel and 400 tons for a number of bridges for the New York Central, Beach Creek Division, are numbered among pending jobs. Of contracts awarded may be mentioned the following: Hotel, Seventh avenue and 124th to 125th street, 1400 tons, to the Lehigh Valley Structural Steel Company, Allentown, Pa.; Murphy Hotel, Richmond, Va., 1500 tons, to the Virginia Bridge & Iron Company; bridge work, Boston & Albany, 350 tons, to the Pennsylvania Steel Company; New York Central terminal work, 300 tons, to Jones & Laughlin Steel Company; a number of bridges for the New Haven, 300 tons, part to the American Bridge Company and part to the Penn Bridge Company; a number of bridges for the Lehigh Valley, including 400 tons to the American Bridge Company; loft East Twenty-fifth street, 1000 tons, to Hay Foundry & Iron Works; loft East Thirty-second street, 550 tons, to the Hedden Iron Construction Company. The Havana Central is understood to have placed 100 cars with the Standard Steel Car Company, and other car business closed includes 1500 for the Central of New Jersey, the company taking 500 more than the thousand on which it inquired; 64 passenger cars for the Norfolk & Western, and 2500 cars for the Illinois Central, 1000 going to the American Car & Foundry Company, 750 to the Pressed Steel Car Company and 750 to the Standard Steel Car Company. Quotations are: Steel bars, 1.36c. to 1.41c.; plain structural material and plates, 1.41c. to 1.46c.; bar iron, 1.32c. to 1.37c., all New York. Plain material from store, 1.75c. to 1.85c.

Old Material.—There is some variation in prices paid for heavy melting steel scrap in Eastern Pennsylvania, some mills having ample supplies, and, in fact, limiting shipments, while others are bidding for material and are running with only moderate stocks. Little interest is shown in scrap for foundry use and in some grades of wrought scrap prices are easier. A New Jersey rolling mill has started up after two years' idleness, but its requirements of scrap are not large. We reduce quotations on heavy cast scrap and wrought pipe. On a number of kinds of scrap the quotations below, which are dealers' prices per gross ton, New York and vicinity, are nominal:

Old girder and T rails for melting	$11.00 to $11.25
Heavy melting steel scrap	11.00 to 11.25
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No. 1 yard wrought, long	11.50 to 12.00
No. 1 yard wrought, short	10.75 to 11.25
Light iron	5.00 to 5.25
Cast borings	7.00 to 7.25
Wrought turnings	8.25 to 8.50
Wrought pipe	9.75 to 10.00
Old car wheels	13.50 to 14.00
No. 1 heavy cast, broken up	11.00 to 11.50
Stove plate	8.75 to 9.00
Locomotive grate bars	8.75 to 9.25
Malleable cast	10.00 to 10.50

Ferroalloys.—The market for 80 per cent. ferromanganese is quiet but firm at $48.50, Baltimore, for future delivery. In the last week there have been sales at around $50, Baltimore, for prompt shipment of carload lots, and spot could probably command even higher prices. Ferrosilicon is quoted at $70, Pittsburgh, for 50 per cent. material in large lots. For carload lots up to $72.50 is asked. The market is firm with little activity.

Metal Market

NEW YORK, June 19, 1912.

The Week's Prices

Cents Per Pound for Early Delivery.

	Copper, New York.			Lead		Spelter	
June.	Lake.	Electrolytic.	Tin, New York.	New York.	St. Louis.	New York.	St. Louis.
13	17.50	17.37½	48.50	4.50	4.37½	6.90	6.75
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17	17.50	17.37½	48.35	4.50	4.37½	6.95	6.80
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19	17.62½	17.50	48.50	4.50	4.37½	7.05	6.90

Copper maintains its strong position at higher prices. There is less activity in tin at higher prices

and with spot supplies scarce. Lead is dull but firm. Spelter has advanced and is strong. Cookson's antimony is higher and Hallett's lower.

New York

Copper.—Interest in the copper situation has been largely directed in the last week to the labor troubles which have affected the American Smelting & Refining Company and the Standard Underground Cable Company, at Perth Amboy, N. J., and the National Cable & Conduit Company at Hastings, N. Y. The troubles of the smelting company were practically brought to a close on June 18 when the men agreed to return to work, and the feeling is general that the other troubles will soon be adjusted. The price of copper was advanced June 18 and on that day the United Metals Selling Company quoted 17.62½c. for electrolytic, 30 days, delivered, equivalent to 17.50c., cash, New York. Other sellers were asking from 17.65c. to 17.62½c., cash, New York. The market has continued strong in every particular and there has been some business, but not a great deal. Lake copper is quoted at 17.62½c., cash, New York. Consumption has been going forward at a good rate. It is thought that the labor troubles which, of course, lessened consumption, affected the copper situation but little because the strikes in the works of the two big consumers was more than offset by the shutdown of the Perth Amboy Smelting Works. It is asserted by copper experts that the stringency in copper stocks in this country is paralleled by a bonafide short supply abroad. The price of spot copper in London to-day is £79 13s. 9d. and of futures £80 7s. 6d. The exports of copper this month total 14,377 tons.

Pig Tin.—The last week has been very quiet in tin. The interest taken by consumers has been slight and there has been a big slump in the tonnage of sales as compared with the previous two weeks. The shortage of spot tin continues, as was predicted, and there is little evidence of relief in sight. Two steamers are en route from Holland bringing large supplies of tin, but a good portion of it consists of Banca tin, which is not acceptable to some consumers and only used by others when price justifies. The Ryndam, due to-day has 345 tons aboard, a large part of it Banca tin, and the Rotterdam, due June 25, has 217 tons aboard, of which only 77 tons is Straits tin. The difficulty in making shipments from London continues and is a source of embarrassment to many American consumers and to dealers who must cover contracts. Tin is quoted to-day at 48.50c. The price of spot in London is £205 10s. and of futures £197. The arrivals this month have been 1242 tons and there is afloat 1247 tons.

Tin Plates.—The lowest sellers of tin plates are asking $3.64 for 100 lb. coke plates. There is no feature of special interest in the market.

Lead.—The consumption of lead is good and the market is firm but dull at the higher prices fixed by the American Smelting & Refining Company one week ago. This company continues to quote 4.50c. New York and 4.37½c. St. Louis, while independents quote 4.42½c. St. Louis, but it is known that this price has been substantially shaded to meet competition.

Spelter.—The high price of ore is asserted to be the cause of higher prices in spelter, which are really beyond the average to be expected at this season. Spelter is quoted at 6.90c., St. Louis, or 7.05c., New York, and at the former price 250,000 lb. were sold on June 18. The market is strong.

Antimony.—Antimony prices have varied somewhat during the week. Cookson's is now quoted at 8.12½c., Hallett's at 7.75c. and Hungarian and Chinese grades at 7.25c.

Old Metals.—The market continues strong. Dealers' selling quotations are as follows:

	Cents per lb.
Copper, heavy and crucible	16.25 to 16.50
Copper, heavy and wire	16.00 to 16.25
Copper, light and bottoms	14.50 to 14.75
Brass, heavy	9.75 to 10.00
Brass, light	8.25 to 8.50
Heavy machine composition	13.25 to 13.50
Clean brass turnings	9.75 to 10.00
Composition turnings	12.00 to 12.50
Lead, heavy	4.00
Lead, tea	3.75
Zinc, scrap	5.50

Chicago

JUNE 17.—A fairly active market has prevailed the past week. Copper prices are very firm and some slightly higher quotations are noted. The scarcity of tin continues and users are carefully husbanding their supplies. Prices are higher both for tin and lead. Old metals are unchanged. We quote as follows: Casting copper, 17.37½c.; Lake, 17.62½c. to 17.75c., in carloads for prompt shipment; small lots, ¼c. to ⅜c. higher; pig tin, carloads, 49.50c.; small lots, 50.50c.; lead, desilverized, 4.45c. to 4.50c., for 50-ton lots; corroding, 4.40c. to 4.45c., for 50-ton lots; in carloads, 2½c. per 100 lb higher; spelter, 6.95c. to 7.05c. Cookson's antimony, 8.50c. and other grades, 8c., in small lots; sheet zinc is $8.65 f.o.b. La Salle or Peru, Ill., less 8 per cent. discount, in carloads of 600-lb. casks. On old metals we quote buying prices for less than carload lots: Copper wire, crucible shapes, 14.75c.; copper bottoms, 12.25c.; copper clips, 13.75c.; red brass, 12c.; yellow brass, 9.75c.; lead pipe, 4c.; zinc, 4.75c.; pewter, No. 1, 28.50c.; tinfoil, 32c.; block tin pipe, 42c.

St. Louis

JUNE 17.—The metal market has shown considerable activity in lead, which has advanced sharply and is quotable now at 4.42½c., with sellers unwilling to let go. Spelter is 6.85c. for spot, with deferred deliveries a little lower. The tin market locally seems to have fallen into the doldrums, for it has followed the New York market all week, the St. Louis quotation invariably being that of New York, with 35c. per 100 lb. freight added. The same situation has been true of the Lake and electrolytic copper markets and the antimony market. In the Joplin ore district the zinc blende prices were again well held up to the record quotation of the past week, though as usual there were some sales at lower prices, due to the condition of the ores. The very highest was $61 to $61.50 and the range was down to $55. In lead the price was firmer and $55 to $56 per ton was obtained. Calamine has been quiet, with 40 per cent. assay commanding $27 and the best grades reaching $33. On miscellaneous scrap we quote as follows: Light brass, 5c.; heavy brass and light copper, 9c.; heavy copper and copper wire, 10c.; pewter, 21c.; tinfoil, 31c.; zinc, 3.50c.; lead, 3.50c.; tea lead, 3c.

Iron and Industrial Stocks

NEW YORK, June 19, 1912.

The market on securities experienced no radical variation within the last week. Up to Saturday the market was generally sluggish and this week began with similar conditions, but despite lack of activity the trend of prices has been upward. With general business moving forward in a fairly satisfactory way the market has been quietly and receptively awaiting the outcome of political events. The range of prices on active iron and industrial stocks from Wednesday of last week to Tuesday of this week was as follows:

Allis-Chalm., com	¾	Pittsburgh St., pref	101½
Bald. Loco., com	53¾- 55½	Pressed Steel, com	34½- 35½
Bald. Loco., pref	107½-108⅛	Railway Spg., com	34¾- 35¼
Beth. Steel, com	35⅜- 37½	Republic, com	23½- 24
Beth. Steel, pref	69½- 70	Republic, pref	79 - 79¼
Can, com	32¼- 35¼	Sloss, com	51 - 54⅜
Can, pref	115⅝-117½	Sloss, pref	100 -100½
Car & Fdry., com	58½- 59¼	Pipe, com	20⅛- 22⅜
Car & Fdry., pref	118¼-118½	Pipe, pref	57½- 61
Steel Foundries	36½- 37	U. S. Steel, com	67¾- 69⅜
Colorado Fuel	31 - 33⅛	U. S. Steel, pref	110⅛-110⅞
General Electric	169 -171⅞	Westinghouse Elec	72½- 74½
Gr. N. Ore Cert	40¾- 41½	Va. I. C. & Coke	58¾
Int. Harv., com	119	Am. Ship, com	53½- 54½
Int. Pump, com	25 - 25½	Chic. Pneu. Tool	48 - 51
Int. Pump, pref	80	Cambria Steel	43 - 43⅜
Lackawanna Steel	35	Lake Sup. Corp	30 - 30½
Locomotive, com	41¼- 42	Warwick	10¼- 10⅜
Locomotive, pref	107½-108½	Crucible St., com	13 - 13⅞
Nat. En. & St., com	15½- 16	Crucible St., pref	87¼- 89⅞
Nat. En. & St., pref	92¼	Harb. Wk. Ref., pref	101

Dividends Declared

The United Shoe Machinery Company, regular quarterly, 1½ per cent. on the preferred and 2 per cent. on the common stock, payable July 5.

The Standard Coupler Company, regular semi-annual 4 per cent. on the preferred and 2 per cent. on the common stock, payable June 29.

The American Brake Shoe & Foundry Company, regular quarterly, 1¾ per cent. on the preferred and 1¾ per cent. on the common stock, payable June 29.

The American Locomotive Company, regular quarterly, 1¾ per cent. on the preferred stock, payable July 22.

The Yale & Towne Mfg. Company, regular quarterly, 1½ per cent. and an extra of 1 per cent., payable July 1.

The United States Cast Iron Pipe & Foundry Company, 4 per cent. on the preferred stock, payable 1 per cent. quarterly, beginning July 15.

The Sloss-Sheffield Steel & Iron Company, regular quarterly, 1¾ per cent. on the preferred stock, payable July 1.

The Crucible Steel Company of America, regular quarterly, 1¾ per cent. on the preferred stock, payable June 29.

The Western Electric Company, regular quarterly, 2 per cent., payable June 29.

The American Iron & Steel Mfg. Company, regular quarterly, 1¼ per cent. on the preferred and common stocks, payable July 1.

The Thompson Starrett Company, regular semi-annual, 4 per cent. on the common stock, payable July 1.

The Boston Belting Company, regular quarterly, $2, payable July 1.

The Independent Pneumatic Tool Company, regular quarterly, 2½ per cent., payable July 10.

The Empire Steel & Iron Company took no action on the semi-annual dividend on the preferred stock due July 1, which if not paid will make the total of dividends accumulated 27 per cent.

The J. I. Case Threshing Machine Company, regular quarterly 1¾ per cent. on the preferred stock, payable July 1.

The Canadian-Westinghouse Company, quarterly 1¾ per cent., payable July 10.

The M. Rumely Company, regular quarterly, 1¾ per cent. on the preferred stock, payable July 1.

Personal

William S. Pilling, of Pilling & Crane, Philadelphia, Pa., accompanied by his family, will sail on July 11 for a two months' trip abroad, which will include an automobile tour of England.

Frank Samuels, iron and steel merchant, Philadelphia, Pa., will sail next week for a month's trip abroad.

Dr. Wm. Cawthorne Unwin is planning to participate in the International Congress for Testing Materials which opens in New York September 3. He will probably leave England in the latter part of August.

At the commencement exercises of the Pennsylvania Military College, Chester, Pa., this week, celebrating its 50th anniversary, John Birkinbine, as president of the board of trustees, announced the conferring of honorary degrees upon eight persons, including six alumni of the institution. To Major-General Leonard Wood was awarded the degree of doctor of military science; to Capt. William George Randle, superintendent New York Shipbuilding Company, the degree of doctor of science; to Rukard Hurd, secretary Minnesota Tax Commission, the degree of doctor of philosophy; to Frank Sutton, U. S. Geological Survey, the degree of master of civil engineering. The honorary degree to Mr. Hurd, who graduated in 1878 with the degree of civil engineer, was given in recognition of his work in the scientific standardization of iron ore values and as author of his well-known manual dealing with the iron ores of Lake Superior.

A. C. Dinkey, president Carnegie Steel Company, Pittsburgh, delivered an address Monday evening, June 17, before the Braddock, Pa., Board of Commerce. He referred to the improvements and extensions which are to be made at the Edgar Thomson works at Bessemer, and which will result in much benefit to the town of Braddock, as it will mean the employment of a very large number of men during the improvements and after they have been completed.

Joseph V. Woodworth, consulting engineer at the New York office of the Taft-Peirce Mfg. Company, Woonsocket, R. I., has resigned and accepted the position of consulting engineer and New York representative of the Boston Pressed Metal Company, Worcester, Mass., with offices in the Tribune Building, 154 Nassau street, New York City.

James W. Hitchcock, Cleveland, Ohio, special sales agent of the Phillips Sheet & Tin Plate Company, sailed for Europe June 15 on a pleasure trip, expecting to be in his office again about August 1.

George E. Day, general manager of sales of the Youngstown Sheet & Tube Company, Youngstown, Ohio, and F. E. Merrick, president of the Colonial Supply Company, a subsidiary interest, with main offices at St. Louis, Mo., have sailed for Europe.

O. D. Dillman, formerly in the main office of the Hooven, Owens, Rentchler Company, Hamilton, Ohio, has been appointed assistant manager of the Chicago branch.

A. H. Walton, treasurer the Dean Mfg. Company, Newport, Ky., has retired on account of ill health.

John A. Allen, formerly purchasing agent of the Lackawanna Steel Company, at Buffalo, N. Y., and later with the Hubbard Steel Foundry Company at Chicago, has been made purchasing agent of the Brier Hill Steel Company at Youngstown, Ohio.

Robert W. Ney, manager of the wire mills of the American Steel & Wire Company, Cleveland, Ohio, sailed June 11 for a trip to Europe.

Arthur H. Young, formerly assistant supervisor of labor, became safety inspector, effective June 10, for South Works of the Illinois Steel Company, succeeding R. J. Young, now general safety inspector for all works.

R. J. Hurley, formerly superintendent of the New England Gear Works, Boston, Mass., has been appointed superintendent of the Union Gear & Machine Company, Boston.

P. D. Plank, master mechanic of the shops of the Louisville, Henderson & St. Louis Railway at Cloverport, Ky., has resigned, and he is succeeded by J. B. Randall.

George D. Kirkham, representative of the American Steel & Wire Company for Kentucky and Tennessee, who was operated on for appendicitis at a Memphis hospital, is reported making rapid recovery. He was just preparing to leave for Europe when he was stricken. Though he formerly made his headquarters in Louisville, he has been located at Memphis for the past year.

W. Ely Ainge has accepted the position of consulting accountant for the Brier Hill Steel Company, with offices in the Stambaugh Building, Youngstown, Ohio.

D. S. Muckley, heretofore superintendent of wire mills at Monessen, Pa., has become superintendent of the Cambria Steel Company's wire department at Johnstown, Pa., succeeding John E. Lonngren, who recently resigned.

S. G. Valentine, formerly connected with Lebanon, Pa., blast furnaces and afterward superintendent of the Dunbar Furnace Company, Dunbar, Pa., was recently appointed superintendent of the Oxford, N. J., furnace of the Empire Steel & Iron Company.

Abbott L. Morris, a graduate of the University of Michigan, has engaged to enter the efficiency and welfare department of the Goodyear Tire & Rubber Company, Akron, Ohio, taking up his duties on August 1.

Obituary

JOHN L. SARDY died in London, England, May 27, aged 53 years. He had established a high reputation as an American business missionary. He was born in Owego, N. Y., and at 25 years of age entered the importing business, his firm becoming sole agent in America for some of Europe's most notable factories. After the panic of 1893 he decided that the time had come for Europe to buy from this country and made an extensive trip to interest Eastern markets in American manufactures. His tour occupied three years and covered not only Europe but portions of Asia and Australia. Finding that buyers in those markets were strongly wedded to the practice of sending their orders to England, he decided to make London the central point for building up business in American exports and conducted his operations from that city. Up to the time of his death he had lived in London for 17 years. He wrote several series of articles for the hardware department of *The Iron Age* which attracted wide attention, as his thorough knowledge of trade conditions was united with the ability to express himself in forcible language. He leaves a widow.

MICHAEL J. AHERN, assistant superintendent of the Thirty-third street mills of the Carnegie Steel Company in Pittsburgh, died at his home in that city June 11, aged 40 years. He was born in Buffalo, N. Y., went to Pittsburgh about 24 years ago, had been an employee of the Carnegie Steel Company for about 25 years, and for 17 years was assistant superintendent of the Clark works. He leaves a widow, one son and two daughters.

MAJOR ELI H. JANNEY, inventor and field quartermaster on the staff of Gen. Robert E. Lee during the civil war, died in Alexandria, Va., June 16, in his eightieth year. He was the inventor of a car coupler in general use on steam railroads.

JIM STEVENS, Rome, N. Y., died June 14, aged 77 years. He was president of the Rome Merchant Iron Mill for 25 years, retiring from active business in April, 1911. He was a member of the New York Assembly in 1868 and 1869.

Pittsburgh and Vicinity Business Notes

The Inland Steel Company, Chicago, has placed a contract with the United Engineering & Foundry Company, Pittsburgh, for the building of a three-high plate mill 32 x 90 in., including straightening machine, lathes, conveyors, plate shears, scrap shears, turnover rigs, etc., also a contract for the complete roll turning equipment. The mill will likely be motor driven, but this has not been definitely decided. There will be two shears for cutting 110-in. plates, one for cross cutting and one for slitting. The tilting tables will be operated by motors and will be equipped with the United Engineering & Foundry Company patented air hydraulic counterbalanced system, similar to the equipment built by the same company for the plate mill of the Indiana Steel Company at Gary, Ind. The mill will be of much the same general design as the plate mills built by the company for the Republic Iron & Steel Company at Youngstown, Ohio, and the American Rolling Mill Company at Middletown, Ohio. The company has also received a contract from the Pittsburgh Crucible Steel Company, Midland, Pa., for a steam hydraulic bloom shear, tilting and loading tables, pusher to be located back of the shear, and two crop conveyors.

The Alex Laughlin Company, engineer and contractor, Lewis building, Pittsburgh, has received a contract for two horizontal continuous heating furnaces to be installed in the new plate mill of the Inland Steel Company at Chicago.

The Bessemer Gas Engine Company, Grove City, Pa., which is increasing its capital stock from $400,000 to $1,000,000, will install a new 1000 hp. power plant. This will be composed entirely of its own make of gas engines, but the company will buy generators and other necessary supplies, such as switchboards, etc. The company is also installing a factory fire equipment, and will possibly add one building to its machine shop. It has already placed orders for considerable new equipment such as grinding machines, boring mills and lathes. The company is arranging to bring out a line of fuel oil engines in sizes up to 300 hp., and a line of small single and multiple cylinder engines up to 40 hp. to operate on gasoline, naphtha, kerosene oil and natural gas. The new lines will be in addition to its present output of gas engines and direct driven compressors.

The Reliance Coke Company, 400 German National Bank Building, Pittsburgh, has been incorporated and the following officers elected: H. C. Fownes, president; W. C. Fownes, vice-president; W. C. Fownes, Jr., secretary and treasurer. This company will immediately start development of 600 acres of coking coal at Denbeau Station on the Pittsburgh, Virginia & Charleston Division of the Pennsylvania Railroad, near Brownsville, Pa., where 250 rectangular ovens will be built and a modern coke plant will be in operation about the first of the coming year.

The Pennsylvania Casting Machine Company, North Side, Pittsburgh, has purchased the property it has occupied under lease for some years. It is adjacent to the works of the Riter-Conley Mfg. Company.

The Aluminum Company of America, successor to the Pittsburgh Reduction Company, will redeem on July 1 $1,450,000 collateral trust 4 per cent 50-year gold bonds issued under the name of the St. Lawrence Securities Company.

George T. Ladd & Co., steam specialty engineers, Farmers Bank Building, Pittsburgh, has taken the agency for the Pittsburgh district for the Austin Separator Company, the Wright Mfg. Company and the Murray Specialty Company, all of Detroit, Mich. These companies manufacture separators for steam and oil, water columns, steam traps, boiler feed water regulators, automatic stop and check valves. Ladd & Co. recently closed orders for three horizontal tubular boilers for the Hyde Park Works of the American Sheet & Tin Plate Company, a boiler for the Model Coat & Apron Supply Company, Pittsburgh, and a number of vertical and locomotive type boilers to contractors in the Pittsburgh district.

The American Engineering Company, Philadelphia, through its offices in the Oliver Building, Pittsburgh, has secured contracts from the Republic Railway & Light Company, formerly known as the Shenango Valley Street Railway Company, for six 7-retort stokers to operate 500-hp. Edgemore boilers near Youngstown, Ohio, and from the Consolidated Gas & Electric Light Company, Baltimore, for four 8-retort stokers.

The New Castle Steel & Iron Company, New Castle, Pa., has applied for an Ohio charter, and it is stated it will probably take over the plant of the New Castle Forge & Bolt Company at New Castle and will remodel it, adding new equipment for the manufacture of steel cars. Nothing definite along these lines has yet been done.

The annual meeting of the Westinghouse Machine Company at East Pittsburgh, originally called for June 25, has been postponed, awaiting the shaping up of re-financing plans now under way.

J. M. Searle, chief smoke inspector for Pittsburgh, read a paper on Tuesday evening, June 18, before the Engineers' Society of Western Pennsylvania, Oliver Building, Pittsburgh, on the subject of "Coal Smoke and Its Practical Abatement."

J. A. McCreary, formerly superintendent of the W. J. Rainey coke plant at Mount Braddock, Pa., has recently received a contract for 180 special design coke oven doors of which he is a patentee, and also an order from the Tower Hill-Connellsville Coke Company for 25 of these doors.

The National Malleable Castings Company, Sharon, Pa., has contracted with the Republic Railway & Light Company for supplying electric power to the Heroult electric melting furnace it is now installing.

The new tin mill equipment to be installed by the Youngstown Sheet & Tube Company at Youngstown, Ohio, will consist of one two-door sheet and one two-door pair furnace, stoker fired, one stand 28 x 34 in. rolls, one 126 in. squaring shear, and one 38 in. doubling shear, both shears being motor driven. The mills and shears are being built by the United Engineering & Foundry Company, Pittsburgh, while the furnaces will be erected by the company. The mill will be located in an extension to the present sheet mill building, for which the McClintic-Marshall Construction Company, Pittsburgh, has the contract. The mill will be connected to and driven from the east end of the present sheet mill roll train.

A fire test of six types of partitions is to be held in Cleveland, Ohio, Friday, June 28, at a testing laboratory at 7500 Ætna Road, S. E., under the direction of V. D. Allen, inspector of buildings of Cleveland. As officials to witness the tests Mr. Allen has named L. H. Miller, Bethlehem Steel Company; Prof. John H. Nelson, Case School of Applied Science and W. S. Lougee, architect, Cleveland. The types of partitions to be studied are: metal lath on wooden studding; 2-in. solid metal lath, wood lath on wooden studding; stucco wall according to specifications of Associated Metal Lath Manufacturers; 4-in. hollow metal lath; plasterboard on wood studding. Details can undoubtedly be obtained by writing H. B. McMaster, Wick building, Youngstown, Ohio.

Last week about 100 men employed at one of the Oxford, N. J., mines of the Empire Steel & Iron Company came out in a body after making a demand for an increase in wages. The men refused to return to work pending a conference and the company discharged them. For the time being the mine is closed while another working force is being brought together.

Interests controlling the Chattanooga Estates Company and the Durham Coal & Iron Company, Chattanooga, Tenn., are reported to have completed plans for the development of 22,000 acres of coal and timber lands on the Sewanee plateau near Chattanooga. Coke ovens are to be built.

The Boonton Iron & Steel Company, Boonton, N. J., started up its rolling mill June 17 after a shutdown of many months. The company has orders on its books for about two months' operation.

Deterioration of Coal in Storage

Results of the Bureau of Mines Inquiry Into Weathering and Spontaneous Heating

A preliminary report on the investigations of Horace C. Porter and F. K. Ovitz on the deterioration and spontaneous heating of coal in storage has been issued by the Bureau of Mines at Washington, as announced in *The Iron Age* of May 9, page 1148. It states that coal-storage problems have grown in importance with the increasing consumption of coal and the consequent greater need of guarding against interruptions of supply by strikes or transportation difficulties. The naval coaling stations, the Panama Railroad Company, the commercial coal-distributing companies on the Great Lakes, the large coke, gas or power plants at a distance from the coal fields and many of the railroads, particularly those in the West, keep 50,000 to 500,000 tons in storage a large part of the time.

The results show in the case of the New River coal a loss of less than 1 per cent. of calorific value in one year by weathering in the open. In two years the greatest loss was at Key West, 1.85 per cent. There was practically no loss at all in the submerged samples in one year, fresh or salt water serving equally well to "preserve the virtue" of the coal. There was almost no slacking of lumps in the run-of-mine samples. In all tests the crushed coal deteriorated more rapidly than the run-of-mine.

The Pocahontas run-of-mine coal in a 120-ton pile on the Isthmus of Panama lost during one year's outdoor weathering less than 0.4 per cent. of its heating value, and showed little slacking of lumps. Gas coal during one year's outdoor exposure suffered practically no loss of calorific value. The Wyoming coal in one of the bins deteriorated in heat value 5.3 per cent. during storage for two and three-fourths years, and more than 2.5 per cent. in the first three months. Storage under water unquestionably preserves the heating value and the physical strength of coal. But such storage practically makes necessary the firing of wet coal, and consequently the evaporation in the furnace of added moisture varying in amount from 1 to 15 per cent. according to the kind of coal.

Losses of value from spontaneous heating are a much more serious matter than the deterioration of coal at ordinary temperatures. Oxidation proceeds more rapidly as the temperature rises. It is important to guard against even moderate heating of the coal, either spontaneous or from an external source. High volatile matter does not of itself increase the liability of coal to spontaneous heating. Of 1200 replies from large consumers of coal 260 gave instances of spontaneous combustion, in 220 the names of the coals being given. Ninety-five were in semi-bituminous low-volatile coals of the Appalachian region, 70 in higher-volatile coals of the same region, and 55 in western and middle western coals. This result shows at least no falling behind of the "smokeless" type of coal in furnishing instances of spontaneous combustion. In the large stock piles at Panama, Appalachian coals, with 17 to 21 per cent. volatile matter, give a great deal of trouble from spontaneous combustion.

In none of the cases of spontaneous combustion investigated by the Bureau of Mines could it be proved that moisture was a factor. Sulphur was shown to have a minor effect in most instances. A Boston company using a Nova Scotia coal containing 3 to 4 per cent. sulphur had much trouble with spontaneous fires in storage piles. Analyses from exposed piles in which heating had occurred showed that 90 per cent. of the sulphur was still unoxidized. Ideal conditions for heating of piles are offered by a mixture of lump and fine coal, such as run-of-mine with a large percentage of dust piled so that a small supply of air is admitted to the interior of the pile. Freshly mined coal and the fresh surfaces exposed by crushing lumps exhibit a remarkable avidity for oxygen, but after a time the surfaces become coated with oxidized material, "seasoned," as it were, so that the action of the air becomes much less vigorous. The following precautions are suggested:

1. Do not pile over 12 ft. deep, nor so that any point in the interior of a pile will be over 10 ft. from an air-cooled surface.
2. If possible, store only screened lump coal.
3. Keep out dust as much as possible; to this end reduce handling to a minimum.
4. Pile so that lump and fine are distributed as evenly as possible; not, as is often done, allowing lumps to roll down from the peak and form air passages at the bottom of the pile.
5. Rehandle and screen after two months, if practicable.
6. Do not store near external sources of heat, even though the heat transmitted be moderate.
7. Allow six weeks' "seasoning" after mining and before storing.
8. Avoid alternate wetting and drying.
9. Avoid admission of air to interior of pile through interstices around foreign objects, such as timbers or irregular brickworks, or through porous bottoms, such as coarse cinders.
10. Do not try to ventilate by pipes, or more harm may often be done than good.

Conference on Amalgamated Scale.—A wage conference between the Western Bar Iron Association and the Amalgamated Association of Iron and Steel Workers began on Tuesday, June 18, at Buffalo. As already noted, the new puddling scale is based on $5.25 per ton for puddling on a 1 cent card, and advances 15 cents per ton for each $1 advance in the price of bar iron. At this writing the conference is still in session. In case of agreement there will be but little interruption to operations around July 1.

Increased Operations at Steelton.—The Pennsylvania Steel Company is now operating its Steelton, Pa., plant by the use of the duplex process, for the first time in about two years. An additional furnace, No. 3, has been put in blast at Steelton and the No. 1 furnace of the same group that has been idle about 18 months will probably be blown in this month.

The proceedings of the fourteenth annual convention of the National Metal Trades Association April 11, 1912, in New York City have been issued, forming an impressive volume of 150 pages. Besides the valuable information to manufacturers given in the reports of the President, F. C. Caldwell, Commissioner Robert Wuest and Safety Inspector W. H. Doolittle, and in the studies of committees on such vital subjects as compensation for injuries to workmen and industrial education, addresses are reported in full on employers' liability, on "How Far Must Business Yield to the Demands of Industrial Organization?" by J. J. Feely, Boston; on "Tariff of To-day and of Future," by Franklin MacVeagh, secretary of the Treasury, and on industrial organization by Dr. Arthur A. Hamerschlag.

The system of distinctive coloring for pipes in industrial plants proposed some months ago in Germany is being received with favor, according to the Engineer of London. It includes green for water, yellow for gas, blue for air, white for steam, black for tar, rose for lye, brown for oil, gray for vacuum, rose with red streaks for acids. A fuller indication of the contents of the pipes, pressure, temperature, impurities or admixtures is effected by a combination of the basic colors with stripes of red for danger, black for impurity, white for presence of steam, green for presence of water. The direction of flow is indicated, if necessary, by arrows. The colors are indicated by securely attaching to the pipes small painted and enameled or varnished strips of iron 3 to 4½ in. wide.

Building reports for May to Bradstreet's show that in 96 cities the total value of permits recorded was $64,698,282, a decrease of 10.4 per cent. from April, but a gain of 6.9 per cent. over May, 1911. It is noted that 55 of the 96 cities show gains in May over May, 1911, while only 41 show decreases. On the other hand the entire gain in May this year at the 96 cities is accounted for by the increase of over $5,000,000 or 30 per cent. shown in New York City.

Exports of merchandise for the eleven months ending May, 1912, are valued at over $2,066,600,000 by the Bureau of Statistics, Department of Commerce and Labor, and show an increase compared with the same period ending May, 1911, of nearly $41,275,000. The total value of imports for the eleven months ending May this year is about $1,522,137,000, an increase over the corresponding period a year ago of over $117,718,000.

Customs Decisions

Sewing Machines

The Board of United States General Appraisers, in sustaining a protest filed by J. W. Hampton, Jr., & Co., has decided that machines used in the sewing together of fabrics in the construction of quilts fall within the specific provision in the tariff of 1909 for "sewing machines." They were assessed as "manufactures of metal" with duty at the rate of 45 per cent., whereas the importers alleged that the duty should be 30 per cent. The Government contended that the term "sewing machines," as used in the law, refers only to the kind used ordinarily in the home. Judge Fischer, in his decision for the board, dissents from this view and upholds the importers' claim. The collector is reversed.

Muck Bars

The board declined to change the classification of 2000 pieces of iron imported by E. Hennigson. The merchandise was assessed for duty at 3/10 of 1 cent per pound under the present tariff law, as muck bars. The protestant claimed a rate of $2.50 per ton as iron in pigs. The customs tribunal holds that the evidence offered does not show the exact character of the importation and that the action of the classifying officer is presumptively correct. The collector is affirmed.

Printing Presses

Lunham & Moore were successful in securing a reversal of the collector's assessment on printing presses, which had been classified for duty at 45 per cent. ad valorem under the section for metal manufactures. The protestants maintained that the articles in controversy are of the kind specifically provided for in the present tariff act at 30 per cent. as "printing presses." Judge Fischer agreed with them and issued an order reversing the higher rate.

Draw Plates

The board sustained a claim filed by F. A. Tasker, it being held that draw plates are entitled to entry as "forgings" at 30 per cent. at valorem under the provisions of paragraph 123 of the existing law. The duty of 45 per cent. imposed by the collector is set aside.

Acid Kettles Not Hollow Ware

Concerning a protest filed by Merck & Co., New York, the Board of United States General Appraisers has affirmed the decision of the collector of the port. The article in question was invoiced as a boiler of cast iron, being a sort of double boiler arrangement used for making acids, and consisting of what is said to be a cast-iron kettle with an acid-proof-enameled inner kettle. Duty was assessed at 45 per cent. ad valorem under Paragraph 199 as "manufactures of metal not specially provided for," and the merchandise was claimed dutiable at 40 per cent. ad valorem under Paragraph 158, which provides for "table, kitchen and hospital utensils or other similar hollow ware of iron or steel, enameled or glazed with vitreous glazes, but not ornamented or decorated with lithographic or other printing." On the part of the Government it was urged that the article in question, weighing about 1½ tons and valued at 1134 marks, is not of the character of the goods provided for under Paragraph 158, being admittedly made of cast iron, but not "hollow ware" similar to the goods for which provision is made in that paragraph of the Tariff act of 1909. The protest is accordingly overruled.

The Hibernia, N. J., iron mines of the Wharton Steel Company are closed down temporarily owing to a strike of 300 employees for a 10 per cent. advance. A small force of men is at work, sufficient to man the pumps and otherwise care for the property. At the Peters mine at Ringwood, N. J., work was also stopped last week by a strike for higher wages.

President Plummer, of the Dominion Steel Corporation, Sidney, Nova Scotia, estimates that iron and steel is now being imported into Canada at the rate of 1,000,000 tons a year. He announces that the Dominion Steel Corporation is about ready to start the manufacture of wire nails, which are protected, while wire rods are duty free.

New Tools and Appliances

This is essentially a news department for which information is invited

Friction Thimble Micrometer.—The J. T. Slocomb Company, Providence, R. I., has brought out a new type of micrometer equipped with a friction thimble. In this new measuring tool the knurled part of the thimble revolves instead of simply the end, which is an advantage since the friction can be worked with the same hand as that holding the tool. In this way measurements can be made quickly, even though the micrometer may be opened to its full capacity. At the same time the use of this thimble does not prevent the micrometer from being used the same as one without either the friction thimble or the friction stop. The thimble extends only over a little more than half the full length so that, while it can be used when open to the limit, still the screw can be operated without using this feature when so desired. The friction stop used with this micrometer consists chiefly of a coiled flat German silver spring, the inner end of which is attached to a washer that is clamped to the end of the thimble by a shoulder on a central screw. The outer end slides around inside of a large bore in the outer revolving part and is so arranged that in turning to the right the device slides over the spring, but in turning in the opposite direction the friction uncoils the spring, causing it to drive positively in this direction.

Circular File.—For filing aluminum, babbitt and other soft metals the Hayes File Company, Detroit, Mich., is manufacturing a circular file. When it is in use it is mounted on a stand like an emery wheel and rotates at a speed of 200 r.p.m. Teeth are cut by hand on both sides of the file and it is possible to surface metals of this character by holding the pieces against the side of the file. Among the special advantages claimed for the file is that it does not clog.

New Swiveling Vise.—A new type of machinist's vise which is made in a number of sizes is being manufactured by the Charles Parker Company, Meriden, Conn. The steel faces, which are removable, are milled and fitted to the jaws. The base swivels so that the tool is adjustable and can be operated at any point, thus enabling it to be converted for use by a left-hand workman easily.

Upright Dial Gauge.—The B. C. Ames Company, Waltham, Mass., has recently added an upright dial gauge to its line. This instrument is of a low compact design, is not easily upset and can be placed in the most convenient position for the operator. In the ordinary form it is intended for measuring paper, flexible cardboard, fabrics and rubber as well as metals of all kinds which have flat surfaces, but if desired it can be arranged with a small surface in place of the platen for measuring sheet metals and all kinds of material that do not have a flat even surface. The travel of the spindle is 0.3 in., the same as that of the regular upright gauge of this company.

Double-Spindle Flat Turret Lathe.—In addition to its single-spindle flat turret lathe the Jones & Lamson Machine Company, Springfield, Vt., is building a lathe having two spindles. This new tool is not intended to displace the former one, but was developed for the production of duplicate parts in large quantities. It was designed primarily for chuck work and can be used as a single-spindle machine if desired. Although considerably more time is required to set up the work when the two spindles are employed to machine two duplicate parts simultaneously, the increased rate of production it is claimed more than offsets this initial handicap.

The Baldwin Chain & Mfg. Company has appointed Chas. D. Schmidt as local representative in New York City. He has established office and stockrooms at 416 Broadway. The company makes sprockets, as well as chains, and the supply in stock is to allow for ready replacement of sprockets and chains.

The Alan Wood, Iron & Steel Company has received bids for the installation of heavy sheet mills for its Ivy Rock plant, and expects to award the contracts by July 1.

Lessons from German Trade Schools

Prof. John L. Shearer Points Out Features by Which American Schools May Well Profit

A representative of *The Iron Age* asked Prof. John L. Shearer, president of the faculty of the Ohio Mechanics Institute, Cincinnati, for an expression concerning European trade school conditions as observed on his recent trip abroad. Professor Shearer has made yearly trips to Europe for a number of years, and the results of his study of trade schools, particularly in Germany, have been given on various occasions. Consequently what is contained in the present brief interview is rather by way of emphasis on a few points to which his latest visit gave greater definiteness.

"It was my pleasure," he said, "to visit a number of most excellent school, among them several trade schools in Munich, a large trade school just completed in the city of Frankfort and also the trade schools of Hamburg. Affairs in Germany are so thoroughly organized that school work and the industries move hand in hand. There seems to be a much higher appreciation than we find on this side, of the fundamental training for any branch of trade which can be given by the schools. The young workman has a more intelligent conception of the scope of his occupation, and he not only observes more closely, but becomes in a very short time an intelligent experimenter, developing also in originality, which is so essential in our modern industrial life.

"As far as work in iron is concerned, three general classes should be recognized in the German system, and the schools are doing their utmost to develop a high degree of proficiency. The first is that which pertains to the manufacture of machinery of every description. The second is the constantly growing structural iron industry, which is, of course, connecting itself with the very general use of reinforced concrete in every conceivable form. The third is the high development of that older and most renowned industry of the blacksmith, which among the Germans particularly has reached a very high state of perfection, for all sorts of ornamental metal work. No one can visit the German schools and museums or observe old as well as new buildings without realizing the fact that we are only at the beginning of the art metal industry.

"The difference between the German system of trade education and that followed in our own country consists very largely of this fundamental principle: In America we are training young people for no definite purpose except that sooner or later the young man may enter one of the larger factories, either as a workman or future engineer. In Germany the training is very largely for definite trades, with the ultimate purpose of encouraging the small employer, who himself is a master workman employing a limited number of journeymen workers and apprentices. It is particularly for the benefit of these apprentices that the courses in schools are developed, and during their period of apprenticeship they are required by law to attend the trade schools. We should also notice particularly that in all of these trade schools only master workmen are employed to give instruction. We are wasting much money on this side for instruction in many of our so-called manual training schools by employing instructors who are not workmen in any sense, who could not produce a marketable article and who have never in any manner come in contact with the industry which they are supposed to benefit. In this particular we can well afford to learn a valuable lesson from the German system. Even a brief sojourn in Germany, with only casual observation of the industrial life, will prove an inspiration to any one who is fair-minded and possesses more or less accurate knowledge of the inner life and tendencies in America and abroad."

Example of Switchboard Space Economy

A good example of the trend of modern power plant construction is afforded by the line of 7-in. switchboard indicating meters which are being made by the Westinghouse Electric & Mfg. Company, East Pittsburgh, Pa. In a recent installation of these instruments in the Mare Island Navy Yard, San Francisco, Cal., a saving of 25 per cent. in the floor space occupied by the switchboards has been effected.

This board consists of 19 panels either 16 or 24 in. wide and its total length is 28 ft. There are 63 meters included in the equipment, the 16-in. panels having two instruments mounted in a horizontal line, while three meters are mounted in a horizontal line on the 24-in. panels and it is emphasized that this desirable form of construction would have been impossible if the ordinary 9-in. meters had been used. The length of the board in this case would have been 25 per cent. greater or a total of 35 ft., involving greater expense and more floor space. The board controls two 550-kw. and one 1000-kw., 2300-volt, three-phase, 60-cycle generators with exciters and provision is made for the future installation of a 2000-kw. generator. A voltage generator is mounted on the panel containing the control apparatus for the induction motor driving one of the two exciters. The use of remote control apparatus, with consequent absence of heavy wiring, bus bars and oil circuit breakers from the back of the board, has made it possible to have a very neat arrangement of wiring and another point of particular interest is the mounting of the watthour meters on the back of the board, where they are very accessible and at a convenient hight to be read.

Cleveland Engineering Society.—The annual meeting and banquet of the Cleveland Engineering Society was held at the Hotel Euclid, Cleveland, Ohio, June 11. Officers for the ensuing year were elected as follows: President, Dr. Robert H. Fernald, professor of mechanical engineering, Case School of Applied Science; vice-president, Albert J. Himes, engineer of grade crossing elimination of the Nickel Plate Railroad; directors, Eliott H. Whitlock, assistant factory manager National Carbon Company, and F. W. Ballard, municipal light engineer. Among the speakers at the banquet were F. C. Osborn, of the Osborn Engineering Company; J. F. Barker, principal of the Technical High School; Dr. Charles Mabery, of the Case School; A. W. Johnston, general manager of the Nickel Plate Railroad; H. J. Davies, of the Cleveland Railway Company; H. H. Johnson, president of the Cleveland Chamber of Commerce; Mayor Newton D. Baker, E. P. Roberts, the retiring president, and Dr. Fernald.

Fewer Idle Cars.—The American Railway Association statistics show that on June 6 the net surplus of idle cars on the railroads of the United States and Canada was 86,386, compared with 116,201 two weeks previous, a decrease of 29,815. The decrease in the previous two weeks' period was 13,897. The continuation of the decrease in idle freight cars is due to the increasingly large demand for coal cars.

The National Association of Brass Manufacturers held a meeting at the Pontchartrain Hotel, Detroit, Mich., June 11 and 12. A uniform standard of basin cock shanks of 2¼ in. was adopted. The new 8-hr. law passed by Congress, and the labor situation in general were discussed. The association reaffirmed its position in reference to stamping products of its members. The next meeting, Commissioner Wm. M. Webster states, will be held in Toronto, September 10 and 11.

A weekly luncheon arrangement to discuss matters pertaining to the work of the organization has been made by the department heads and other employees of H. M. Byllesby & Co., engineers, Insurance Exchange Building, Chicago. The Byllesby Lunch Club is the result, and the first regular meeting was held June 12 in the La Salle Hotel.

The Warren Tool & Forge Company has started operations in its new plant at Warren, Ohio. The main building is a steel frame structure, 75 x 225 ft., and the equipment is operated by individual motor drive. The company manufactures picks, mattocks, wedges, sledges, vises, anvils, tools and small forgings. The main office is at 602 Bessemer Building, Pittsburgh.

The Northwestern Iron Company, Milwaukee, has increased its capital stock from $2,000,000 to $2,500,000, and is planning to add 70 coke ovens to its plant at Mayville, Wis., 30 in 1912 and 40 early in 1913.

The Steel Corporation Dissolution Suit

Dismantling of Tin Plate Plants After Consolidation —Conditions in the Fabricating Trade from the Standpoint of an Important Independent Interest

At the hearing in New York City in the suit if the United States Government for the dissolution of the United States Steel Corporation, Wednesday, June 12, the first witness was A. F. Huston, president Lukens Iron & Steel Company, Coatesville, Pa., who testified regarding the plate pool which was formed in 1900, and which it is contended included 75 per cent. of the manufacturers of steel plates in the country. His testimony was a repetition of that given by him before the Stanley Committee. The pool was in operation till 1904. Percentages of the business were allotted to the several members, and for each 1 per cent. they paid in $1,000 to W. C. Temple, the pool commissioner, who kept the minutes, records of the tonnages of the members, and figured percentages of output. A minimum price list was agreed on, but departures were made from it by some members without penalty.

The Concentration of Tin Plate Capacity

C. W. Bray, former president American Sheet & Tin Plate Company, who had been examined on Monday, June 10, was recalled for further examination regarding tin plate plants that were dismantled after the formation of the American Tin Plate Company, the original consolidation, of which he was chief engineer for 10 years. He started off by saying that the American Tin Plate Company found that its smaller competitors frequently cut prices and forced a reduction on its part. That led to the buying up of such competitors. In all, 26 different plants were acquired from 1900 to 1902. The number of mills at each of these plants varied, but there were 121 in all. As they came into the possession of his company, Mr. Bray decided what should be done with them. Twelve of the mills were sold out complete. The machinery of 60 mills was moved to going plants. Machinery from 16 mills was in such condition that it was put in storage and used for "spares," a piece here and there at it was needed in some of the company's plants. Machinery from 33 mills went to the scrap heap. Buildings were torn down or moved, real estate was sold or held, according to whether it would be valuable to the company in the future or not. Mr. Bray said that the value of the machinery in each of these mills was about $10,000. In other words, his company spent about $1,210,000 in thus building up its business.

Passing to the operations of the American Sheet & Tin Plate Company, C. A. Severance, of the Steel Corporation's counsel, asked, "In what way, if any, did the American Sheet & Tin Plate Company keep the trade advised of its prices?" Mr. Bray said that the trade papers kept buyers advised of the prices of the combination and of the independents.

"Did the American Sheet & Tin Plate Company have any agreement, written or verbal, with its competitors as to prices?"

"No."

Mr. Severance asked what effect the reduction of prices by independents had on the prices of the American Sheet & Tin Plate Company.

"Small reductions," said Mr. Bray, "we met by saying that our product was better than the other fellow's. If the cut in price was heavy enough to affect our sales materially, we let our prices down, too."

Frank Tenney, assistant to the president of the Pennsylvania Steel Company since 1901, was questioned about prices of iron ore in an attempt to show that prices were increased materially between 1901, when the Steel Corporation was formed, and 1905. The witness said there was no material difference in the prices. The Government introduced a batch of contracts of the Pennsylvania Steel Company, saying that they showed a considerable increase in prices at that time. Counsel for the Steel Corporation objected to the introduction of individual ore contracts as being incompetent and immaterial, contending that market prices for iron ore should be ascertained from the quotations of trade journals.

Testimony of J. V. W. Reynders

J. V. W. Reynders, vice-president Pennsylvania Steel Company, testified at the hearing on Thursday, June 14. He was questioned about the formation of the American Bridge Company, the Steel Corporation's subsidiary, and the trade conditions that resulted. The companies that went into the American Bridge Company, he said, produced 54 per cent. of the country's output at the time. Five plants in the Pittsburgh district were shut down soon after its formation. The proportion of the output by plants having rolling mill affiliations, he said, was 15 to 20 per cent. by the independents and 80 to 85 per cent. by the American Bridge Company. There were many small companies that had fabricating plants without rolling mills.

Integration, which he defined as the process of collecting under one management the means of production and manufacture of raw material from the beginning to the fabricated product, has been a growing tendency since the early '90s, Mr. Reynders testified. The Pennsylvania Steel Company began the process long ago, but he preferred to call the process where his company was concerned "a natural development of business." Integration was in the interest of economy and the stability of production.

Mr. Reynders said there were 60 firms in active competition with the bridge department under his direction. Some of the firms were small and were not considered as serious competitors.

"Taking the entire capacity of fabricating works," said Judge Dickinson, "in 1901-02 after the formation of the United States Steel Corporation, what percentage of capacity was possessed by independent plants connected with rolling mills, and what percentage was possessed by companies in the American Bridge Company, controlled by the United States Steel Corporation?"

Mr. Reynders said that the American Bridge Company controlled 80 to 85 per cent. of such capacity and the independents 15 to 20 per cent. In 1911 he said the relative capacity was the same.

"Of fabricating bridge and structural work of the kind in competition between you and your former large competitors, what proportion has been taken by the American Bridge Company?"

"About 59 per cent.," was the answer.

On cross-examination Richard V. Lindabury for the Steel Corporation inquired as to some of the structural steel contracts secured by Mr. Reynders's company. One of the largest he said was the contract for the Municipal Building, New York City, now in course of construction. The contract involved 25,000 tons of steel work.

Starting with the fact that the witness had testified as to the advantages of steel concerns allied with rolling mills, as is the case with the American Bridge Company, Mr. Lindabury elicited the statement that the McClintic-Marshall Construction Company has secured valuable contracts, bidding against the American Bridge Company.

The tonnage produced by the independents in recent years has more than doubled since the formation of the American Bridge Company, Mr. Lindabury said, and Mr. Reynders corroborated this statement. There had been no difficulty on the part of the independents who have no rolling mill facilities in getting the supplies needed, he also testified.

Mr. Reynders said that most of the independent companies, the names of which Mr. Lindabury called off, were prosperous and developing materially. Mr. Lindabury's list of successful independents approved by the witness was taken from Mr. Reynders's list of the firms that were in competition prior to the formation of the American Bridge Company.

Judge Dickinson asked about work obtained by the

Pennsylvania Steel Company in competition with the American Bridge Company and what the conditions were under which his company was awarded the contracts. "As a rule, the work was taken at ruinously low figures," said Mr. Reynders. He explained that it was important to take work, even if it were not profitable, rather than to have to shut down in whole or in part, as overhead charges had to be taken care of in any event. His company had bid on the work of the Harriman lines up to four years ago, but hadn't been asked to bid lately. All their work was done by the American Bridge Company.

The Lorain and the Troy Steel Companies

A. J. Moxham, formerly associated with Tom L. Johnson and A. V. du Pont in the control of the Johnson Steel Company, which afterward became the Lorain Steel Company and later was one of the subsidiaries of the Federal Steel Company, told of the sale of the Lorain Company in the offices of J. P. Morgan & Co. Messrs. Morgan, Bacon, Gary and Coster were present, he recalled, when the property was turned over to the promoters of the Federal Steel Company. Mr. Moxham did not remember much about the deal. He is now vice-president of the du Pont de Nemours Powder Company.

Everett D. Arnold, who is now in the pipe supply department of the Standard Oil Company, told of the sale of the Troy Steel Company, with which he was connected from 1886 to 1897, to the United States Steel Corporation in 1903. The Troy Company was backed by Standard Oil interests, and had made its pig iron from northern New York ore. The basic Bessemer process was used, and the steel produced was of good quality, but owing to the expensive process could not compete with that made much cheaper by other works. The Troy Company did not make enough money to keep alive, Mr. Arnold said, so it was shut down for several years prior to its purchase by the Steel Corporation.

Tennessee Stock Holdings of Moore & Schley

Details of the transfer of the stock of the Tennessee Coal, Iron & Railroad Company, occupied a large part of the hearing on June 17. John F. Tierney, cashier for the brokerage firm of Moore & Schley, told how the appeal of the latter concern for assistance during the critical stage of the money panic of 1907 was met by an exchange of marketable securities for unmarketable securities by the First National Bank, Col. O. H. Payne and the United States Steel Corporation. On November 1, 1907, Moore & Schley held 24,777 shares of Tennessee Coal, Iron & Railroad stock, subject to their use. There were 71,700 shares out on stock loans and 10,000 shares owned absolutely were in safe keeping in what was known as box 2. Mr. Tierney said that 15,000 shares were exchanged with the First National Bank for other collateral which was hypothecated for loans.

Mr. Tierney on cross-examination told Mr. Lindabury that all of the 24,777 shares had been deposited with the firm by clients of the house as collateral securing general accounts. The company owned the shares in no other way, and none of them was deposited to secure any special loan. The witness said the 71,700 shares were out on loans through rehypothecation. The 10,000 shares in safekeeping he said, were owned by an individual whom he preferred not to name, and were sold a few days later with the other Tennessee Coal, Iron & Railroad stock.

By November 4 Moore & Schley had used up all the collateral they had, except Tennessee Coal & Iron, which the witness said was not then current. Banks which had demand loans refused to accept anything but cash. No increase in the collateral was permitted. Moore & Schley had exhausted their supply of stocks in putting up collateral where this was acceptable. The witness said he did not have the exact figures as to the Moore & Schley loans on November 4, but estimated them as between $30,000,000 and $40,000,000. Then there was an exchange of 15,000 shares of Tennessee Coal, Iron & Railroad Company with the First National Bank, 20,000 with the Steel Corporation, and 15,000 with O. H. Payne.

Early Material Prices to American Bridge Company

Foster Milliken was the next witness. He told that the merger effected by the various bridge building concerns under the leadership of the American Bridge Company resulted in bringing together approximately 80 per cent. of the total structural iron and steel trade in the United States. An agent by the name of Ladd approached him and urged his company to join the combination, but the offer was declined.

Shortly after the merger was effected, he said, the independents met to discuss the conditions of trade and the supply of raw material, which was growing somewhat scarce. He for one, complained to the Steel Corporation about the prices, but no action was taken in the matter. At a later meeting of the independents he said that Charles M. Schwab tried "to pour oil on the troubled waters" while Joshua Hatfield declared that the American Bridge Company was getting its raw material from the Steel Corporation at one-tenth cent per pound less than the independents were charged.

On cross-examination, Mr. Milligan figured out the individual percentages of the principal concerns taken over by the American Bridge Company as follows: Post & McCord, 9 per cent.; Pencoyd, 15 per cent.; Elmira Bridge Company, 11 per cent.; Union Bridge Company, 7 per cent.; Edgemere Bridge Company, 11 per cent.; Lassig, 7 per cent.; Schiffler, 9 per cent.; Rochester Company, 7 per cent.; Pittsburg Company, 10 per cent.; Trenton, 7 per cent., and Keystone Bridge Works, 7 per cent.

The hearings were adjourned until Thursday morning, June 20.

New Freight Steamer for Lake Michigan.—The Western Transit Company, Buffalo, N. Y., has closed a contract with the Great Lakes Engineering Works, Detroit, Mich., for the construction of another all-steel package freight steamer. The new boat, which is to be ready for delivery to the owners next spring, will be 350 ft. in length, 48 ft. beam and 30 ft. in depth, with a capacity of 5500 tons of package freight, and will cost approximately $300,000. The equipment will comprise quadruple expansion engines. The completion of the new steamer will give the Western Transit Company ten modern package freighters operating from Buffalo. The new boat will ply principally in the Lake Michigan trade.

Improvements at Mt. Hope Iron Mines.—The directors of the Empire Steel & Iron Company recently made a large appropriation for further improvements at the company's Mt. Hope iron mines in New Jersey. The plans include considerable development work and the installation of an electric haulage system. The expectation is that with the completion of the improvements the output of the mine will be practically doubled. Two years ago the company built at the Mt. Hope mines a large power plant, including Ingersoll-Rand air compressors and an electric separating plant designed by the Allis-Chalmers Company.

One of the largest installations of small core ovens in the automobile field is to be supplied by the Rockwell Furnace Company, New York, for the Ford Motor Company, Detroit. There will be 24 ovens containing 88 shelves, and they are the reel type, each shelf being a circle about 5 ft. in diameter turning independently on a central axis. One-half the shelf is in the oven with the cores on it being baked while the other half of the shelf is outside, serving as a rack. Producer gas is to be used as fuel. The type is regarded as especially adapted for automobile work in that it does away with any jarring and jolting.

Arthur L. Stevens Company has established engineering offices in the Peoples Gas Building, Chicago, for consultation with reference to industrial furnaces, especially open hearth, rolling mill regenerative forging, continuous billet and annealing furnaces for steel and malleable castings. The firm deals also with carbonizing and heat treatment, oil and gas installations, regenerative cyclic ceramic kilns, by-product coke ovens, and the Stevens system of power transmission. Mr. Stevens was formerly consulting engineer for the United Coke & Gas Company, New York, and is now associated in the new company with Geo. A. Gunderson, Chicago.

The Baltimore Tube Company, Baltimore, Md., has contracted with the Rockwell Furnace Company, New York, for overfired accurate temperature annealing furnaces for brass and copper tubing. Oil fuel is to be used.

The Chilled Iron Car Wheel

Failures Decrease While Loads Have Greatly Increased—A Wheel for 140,000-Lb. Cars

The following communication to the Railway Age Gazette, written by George W. Lyndon for the Association of Manufacturers of Chilled Car Wheels, is an interesting statement of the position of that important industry, and is apropos of the article in *The Iron Age* of May 16, page 1206, on "Mixtures for Chilled Car Wheels":

Number of Chilled Iron Wheels in Service

Reference to the Interstate Commerce Commission report for the year ended June 30, 1910, will show that there were 2,133,531 freight cars in service, and classification of this equipment as to capacities shows:

		Per cent.
244,013	freight cars 10,000 lbs. to 50,000 lbs. capacity (inc.)	11.5
865,495	freight cars 60,000 lbs. to 70,000 lbs. capacity (inc.)	40.5
641,022	freight cars 80,000 lbs. to 90,000 lbs. capacity (inc.)	30.1
382,930	freight cars 100,000 lbs. to 110,000 lbs. capacity (inc.)	17.9
71	freight cars over 110,000 lbs. capacity	....
2,133,531		100.0

The character of the equipment was as follows:

		Per cent.
966,577	box cars	45.3
153,919	flat cars	7.2
77,584	stock cars	3.6
818,689	coal cars	38.3
7,434	tank cars	.4
30,918	refrigerator cars	1.5
78,410	other cars	3.7
Total, 2,133,531		100.0

As it takes eight wheels to equip a car, it is evident that there were 17,068,248 wheels in service under freight equipment alone. Ninety-five per cent. of the wheels used under freight equipment are chilled iron wheels. Therefore, there are over 16,000,000 chilled iron car wheels in service in the United States. This figure does not include hundreds of thousands of chilled iron wheels which are used under passenger cars, locomotive tenders and on private car lines. It will thus be seen that the commerce of the country is practically dependent upon the chilled iron car wheel. The chilled iron car wheel may be defined to be a body of metal scientifically molded in which the iron structure in every part of the wheel is admirably suited to its purpose, viz., hard tread, soft plates, soft hub.

The tread or running surface is as hard as the hardest steel, and because of this hardness it becomes polished in service, and this reduces the friction between the wheel and the rail. The plates are soft, thus insuring the necessary structure to carry heavy loads and resist temperature stresses due to brake application. The hub is soft, so that the wheel may be easily machined for axle fit. There is no known metal that possesses the graded hardness of structure of the chilled iron car wheel.

How Wheel Loads Have Increased

The Master Car Builders' Association specifies three classes of wheels for cars of different capacities, as follows: Six hundred and twenty-five-lb. wheel for 60,000-lb. cars; 675-lb. wheel for 80,000-lb. cars, and 725-lb. wheel for 100,000-lb. cars. As the capacities of the cars have increased, the wheels have been increased in weight, but not in proportion to the increase in car capacity and other parts of the car; for instance, the 625-lb. wheel carries a 60,000-lb. car and the 725-lb. wheel carries a 100,000-lb. car; the increase in car capacity has been 66⅔ per cent., and in the weight of the wheel 16 per cent. The 550-lb. axle carries a 60,000-lb. car and the 870-lb. axle carries a 100,000-lb. car; the increase in the weight of the axle is 58 per cent. The body of the car weighs 23,000 lb. for a 60,000-lb. car, and 32,900 lb. for a 100,000-lb. car; the increase in the car body being 43 per cent.

It will be noted that the capacity of the car has been increased 66⅔ per cent. While the weight of the axle has increased 58 per cent., that of the car body 43 per cent., and that of the car wheel only 16 per cent., proving that the weight of the wheel has not increased in the same ratio that increases have been made in the other parts of the car.

The tendency of the railroads is to increase the capacity of the car beyond 100,000 lb., and while axles have been designed for 140,000-lb. cars, no wheel has been specified by the Master Car Builders' Association for this service. Still, the chilled iron car wheel makers are placing in service wheels to carry this load, and even loads of greater capacities. Its use under tenders of 10,000 gal. capacity and ore cars of 150,000 lb. capacity proves conclusively that there is scarcely a limitation to the chilled iron wheel, and it is standard because of its safety, economy and adaptability.

As long as cars increase in capacity, all parts of the wheel should be strengthened proportionately, and in the process of evolution, from cars of 10,000 lb. to cars of 100,000 lb. capacity, metal has been added to all parts of the wheel with the exception of the flange, because of the recognized limits of track clearance.

From the earliest period of railroading the frog and guard rail clearance has been a minimum of 1¾ in., although many roads throughout the country use a minimum of 1⅞ in. and 2 in. clearance. The weight of the wheel has increased from 525 lb. to 725 lb., of the rail from 50 lb. to 100 lb., and practically the same flange is used to-day as was used under cars of 20,000 lb. capacity.

Cheapness of Chilled Wheels

The important service that the chilled iron wheel is rendering is performed at a minimum cost. A chilled iron car wheel is sold in the market for an approximate differential of $3.50. The net cost to the railroad is the difference between the selling price and the old wheel which is taken as part payment for the new wheel, amounting to approximately $3.50 per wheel. These wheels are guaranteed for a certain period, and in case the wheel does not give the service for which it is guaranteed the loss comes on the manufacturer.

Under some conditions of service a 625-lb. wheel is guaranteed for six years minimum service, a 675-lb. for five years, and a 725-lb. for four years. The average life of the various classes of wheels will approximate as follows: Twelve years for a 625-lb. ordinary freight car wheel, 10 years for a 675-lb. wheel, and 8 years for a 725-lb. wheel. Assuming that a 625-lb. wheel only fulfills its guarantee, the cost per wheel per year, based upon the $3.50 differential, is 58⅓ cents, and the cost of 8 wheels per car is $4.66 per year. If this expense is based on the average life of 12 years for a 625-lb. wheel, the cost per car per day would be approximately $2.33.

It is stated that about 85 per cent. of the repairs to freight cars are due to shocks consequent on coupling, etc., thus damaging bolsters, draft-gears and other parts of the car. Analysis of the cost of the repairs of freight cars will show that the wheel expense is insignificant compared with the repairs for other parts of the car.

The Alternative of Higher First Cost

If any other wheel is substituted for the standard chilled iron wheel it must be demonstrated by competitive tests: first, that it is more economical per ton mile; second, that it is better adapted to the service for which it is intended, and third, that it must be safer.

Then it must be borne in mind that an added cost of $10 per wheel would involve an expenditure of $80 per car, and the interest on this investment at 5 per cent. would be $4 per car per year, which is more than the renewal cost of the standard chilled iron car wheel, and on this basis it would amount ultimately to an additional investment to the railroads of $160,000,000 for freight car wheels alone.

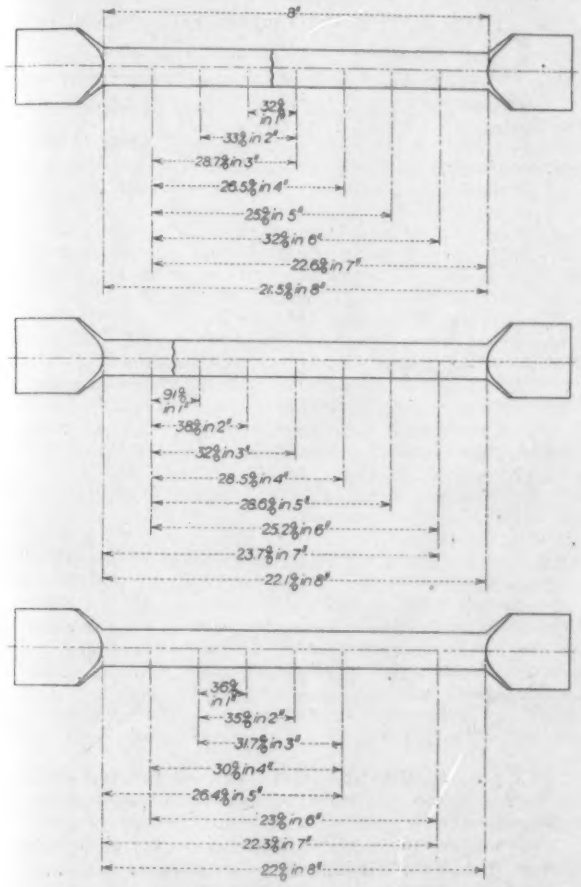
The Association of Manufacturers of Chilled Car Wheels represents a capacity of 20,000 chilled iron car wheels per day. Its members are spending time and money investigating the important service conditions, and they are paying the most careful attention to improved foundry methods, selection of material and physical tests in order to bring their product up to the very highest standard. Statistics show that with the rapid increase in car load and capacity there has been a decrease in wheel failures. Years of experience have proved that the chilled iron car wheel will meet any condition of service no matter what load is imposed on it, and the railroads receive a greater return per unit of investment from the chilled iron car wheel than from any other car wheel known.

Elongation in 8-Inch and 2-Inch Bars

Tests Showing That 20 Per Cent in the Former Is the Equivalent Approximately of 25 Per Cent. in the Latter

BY E. F. CONE

There has always been considerable uncertainty about the relation between a 2-in. and an 8-in. test bar as to their elongation. The question is: What elongation in 2 in. is the equivalent of 20 per cent. in 8 in.? It has many times been desirable to make the tests in 2 in., though a given specification called for the tests in 8 in., the 2-in. test being not only quicker and less expensive, but also the standard test. Accordingly tests were made to determine



Elongation per Inch in 8-In. Test Bars

this relative value. Test bars 3 in. x 1 in. x 14 in. long were cast on several large marine castings and after the castings had been thoroughly annealed, the bars were removed. From each bar there were cut an 8-in. and a 2-in. test. The physical results obtained in each case was as follows:

Test	Heat		Elastic Limit lb.	Tensile Strength, lb.	Per Cent. Elongation	Per Cent. Red. Area
A	1	8"	33,200	68,200	22.75	45.33
		2"	36,000	70,500	26.50	38.80
B	2	8"	34,000	67,600	21.75	46.25
		2"	34,600	71,000	29.50	41.90
C	3	8"	35,400	70,400	20.75	41.57
		2"	37,000	72,500	27.50	35.70
D	4	8"	32,200	68,200	21.25	38.64
		2"	35,000	70,000	26.00	41.90
E	5	8"	34,600	67,200	23.50	38.64
		2"	35,500	68,500	25.50	38.80
F	5	8"	34,800	66,200	21.50	36.67
		2"	35,500	70,000	26.00	40.30
G	6	8"	35,600	69,000	22.00	47.17
		2"	37,000	70,000	28.00	45.40
H	6	8"	33,600	68,000	18.00	*25.23
		2"	37,000	70,500	26.50	41.90
I	6	8"	33,400	67,600	22.50	42.52
		2"	36,500	72,000	27.00	38.80
J	6	8"	33,400	69,000	22.00	45.33
		2"	36,500	72,000	25.00	40.30

*Flaw.

Analyzing the above, we find:

	Elastic Limit	Tensile Strength	Elongation	Reduction of Area
A	2,800 +	2,300 +	3.75 +	6.55 —
B	660 +	3,400 +	7.75 +	4.35 —
C	1,600 +	2,100 +	6.75 +	5.87 --
D	2,800 +	1,800 +	4.75 +	3.26 +
E	900 +	1,300 +	2. +	.15 +
F	700 +	3,800 +	4.50 +	3.63 +
G	1,400 +	1,000 +	6. +	1.77 —
H	3,400 +	2,500 +	8.50 +	15.67 +
I	3,100 +	4,400 +	4.50 +	3.72 —
J	3,100 +	3,000 +	3. +	5.03 —
Average	2,040 +	2,560 +	5.15 +	4.55 —

+ = increase of 2 in. over 8-in. tests.
-- = increase of 8 in. over 2-in. tests.

It will be noticed that there is an increase in elastic limit of 5 to 6 per cent. in the 2-in. bar over the 8-in. bar; in tensile strength of 3 to 4 per cent.; in elongation of about 25 per cent. But in reduction of area there is a slight increase in the 8-in. bar over the 2-in. From these data it is deduced that when specifications for cast steel call for an elongation of 20 per cent in 8 in. the 2-in. test equivalent to this should show 25 per cent. elongation on ordinary mild annealed cast steel.

At the time these tests were made three of the 8-in. bars were laid off in inches, and the elongation in each inch measured. The accompanying cut shows the results of these measurements and is rather interesting.

This investigation was made at the request of the Bureau of Construction and Repair, United States Navy, and the tests were all made under the direction and scrutiny of a representative of the bureau.

Republic Iron & Steel Company

Changes in the Executive Committee

At a meeting of the directors of the Republic Iron & Steel Company held last week the Executive Committee was increased from five to seven, and the company's calendar year changed to coincide with the calendar year instead of ending June 30. Col. John Lambert resigned from both the directorate and the Executive Committee, being succeeded by Leonard C. Hanna, of Cleveland. The Executive Committee as now constituted consists of Mr. Hanna, G. B. Schley, E. W. Oglebay, James Campbell, John F. Harris and John A. Topping. The election of Mr. Hanna as a director and member of the Executive Committee adds strength to the company, as he is a man of recognized ability and of wide experience in the iron trade. He was a member of the board up to about a year ago, when he resigned for personal reasons.

The Improvements at Youngstown

As yet definite plans have not been made by the Republic Iron & Steel Company for the three or four finishing mills it will build at its Brown-Bonnell works at Youngstown. It is the intention to discard two or three of the finishing mills in the Brown-Bonnell plant that are not modern, replacing them with mills of modern equipment and larger capacity. The abandonment of the Mahoning Valley works will probably not be complete for two or three years. The plans for by-product coke ovens at Haselton to supply the blast furnaces there with coke have not been worked out in detail. The Youngstown furnace operators are trying through the Interstate Commerce Commission to secure a reduction on the freight rate on coke from the Connellsville regions to Youngstown, which is $1.35 per ton, while the coal rate is 70 cents. The contention is that the coke rate of $1.35 is arbitrary and should be reduced to the same as the coal rate, or at least that a very material reduction should be made. The shape the by-product coke oven plans finally take is contingent somewhat on the outcome of this matter. With its existing beehive ovens, the building of 60 or 70 by-product ovens at Haselton, with a capacity of about 1000 tons of coke per day, would give the company a full supply of coke for the Haselton furnaces.

The Machinery Markets

Considering the season and the political agitation that prevails throughout the country the machinery trade generally is doing well. Business is fairly satisfactory in practically every market, several of which report that the usually baneful effects of a presidential year are missing. New York dealers have done some good business and have inquiries in hand that are encouraging in number and quality. Activity continues in New England, where an improvement has been noted for some weeks. Single tool buying has improved in Philadelphia where there also has been an especial call for grinders and automobile motors. Manufacturers are generally busy in Cleveland and while actual sales are light for some products the demand for others, including handling equipment, is good. Cincinnati has had a good demand for planers and medium sized lathes in particular. Miscellaneous sales and the placing of orders against good sized lists have contributed fair business in Chicago and more is still pending. Detroit has had a steady demand for shop supplies and equipment and an active call for special machinery required for the automobile industry. The chief feature in the Central South has been an improved demand for power equipment. The report from Birmingham is that trade has been quiet but steady, with the best call for pumps and woodworking equipment. Trade in St. Louis was satisfactory and from that city comes an announcement that the receivers of the Wabash Railroad may build new shops in Decatur, Ill. Business has been brisk in Texas, which is looking forward to renewed activity in Mexico as a result of better political conditions in that country. The noteworthy demand on the Pacific coast is for contractors' equipment and woodworking machinery.

New York

NEW YORK, June 19, 1912.

A state of trade which tends toward satisfaction on the part of dealers has continued in the New York machinery market since the last report and so far predictions hold good that June will be a good month. Inquiries have been received in fair number, although none individually are of especial szie. Several houses have received the orders looked for from the Safety Car Heating & Lighting Company for its Jersey City plant, although delivieries are not to be made for some time to come. The United States Light & Heating Company has placed orders for equipment for a new plant at Niagara Falls where an electric automobile starter is to be manufactured. The starter is declared to be a distinct advance on present systems and at last reports three big auto companies had contracted to use the device. Estimates place the investment for the new plant at about $250,000. Another interest which has been in the market is the Kutztown Foundry & Machine Company, which purchased a 16-ft. vertical boring and turning mill and a 72-in. horizontal floor boring machine. Inquiries indicating requirements of new tools have been received by the trade from the Foster Engineering Company and the Essex Foundry Company, both of Newark. Hoisting machinery manufacturers have received better inquiry in the last few days from industrial companies.

M. Welte, 273 Fifth avenue, New York, organ and piano manufacturer, has awarded a contract to the Torrington Building Company, Torrington, Conn., for the erection of a factory building 51 x 212 ft., three stories, at Poughkeepsie, N. Y.

The mayor of Stanhope, N. J., will open bids June 24 for the construction of a water works system complete.

John C. Gregory, Essex Building, Newark, N. J., has had plans prepared for a plant for the manufacture of piano parts to be erected on Frelinghuysen avenue. The building will be 80 x 338 ft., one story, of brick construction and is estimated to cost $40,000.

Baker & Co., Newark, N. J., platinum refiners, have had plans prepared for the erection of an addition to their plant, 50 x 150 ft., two stories, of fireproof construction. Equipment details are not as yet announced.

The power plant of the Perry Electric Light Company at Perry, N. Y., was completely destroyed by fire on June 14, with a loss of $20,000 on plant and equipment. The warehouse and mill of Ewart & Lake adjoining was also burned with a loss of $10,000 on grain cleaning and bean clipping machinery. Both plants are to be rebuilt.

The new plant of the Clark Bros. Company, Belmont, N. Y., manufacturer of sawmill machinery, is to be located at Olean, N. Y. The industry employs about 300 men.

The Defender Dry Plate Company, Rochester, N. Y., is placing contracts for construction of a factory building 100 x 450 ft., one story, of brick, from plans of Architect James Tyler.

The Oneida Community has plans in preparation by Engineer William B. Field, Prudential Building, Newark, N. J., for a silver plating mill to be erected at Sherrill, N. Y. The building will be of reinforced concrete, four stories, with a floor space of 75,000 sq. ft.

F. D. Van Wagenen, Inc., Fulton, N. Y., manufacturer of vehicles, farm implements, etc., has been incorporated with $40,000 capital stock and will establish a plant. F. D., E. V. and G. Van Wagenen are the incorporators.

The Motor Mfg. Company, Geneva, N. Y., is moving its plant to Dunkirk. David Reed is president of the company and R. J. Hall superintendent.

The Brooks Motor Car Company, Buffalo, N. Y., has been incorporated with a capital stock of $100,000 by F. G. Rechtsteiner, G. B. North and E. O. Kerr, and arrangements for a manufacturing plant are under way.

The Stewart Motor Corporation, Buffalo, has been incorporated with a capital stock of $250,000 to manufacture automobiles and auto-trucks. Arrangements for the leasing and equipment of a plant are being completed. Thomas R. Lippard, president, and R. G. Stewart, vice president, of the new company, were formerly connected with the Lippard-Stewart Motor Car Company of that city. R. P. Lentz is secretary and treasurer.

The American Radiator Company will build an addition to its Pierce plant at Elmwood avenue, Buffalo, to cost $54,000.

The Buffalo Foundry Supply Company, J. A. Heinsheimer, manager, Buffalo, having disposed of its plant on Babcock street will establish and equip a new plant on the Pennsylvania Railroad adjacent to its present location. Machinery equipment from the present plant will be utilized as far as practicable.

The Spencer Lens Company, Buffalo, has increased its capital stock from $30,000 to $250.000. A portion of the additional capital will be used for the enlargement of the company's manufacturing facilities.

The Electric City Specialty Company, Buffalo, has been incorporated with a capital stock of $25,000 by J. E. and I. E. Stark and J. H. Baer and will manufacture stamped sheet metal and wire goods. A factory has been secured by the company at 161, 163 and 165 Adams street.

New England

BOSTON, MASS., June 18, 1912.

The market shows little change. A significant fact is that even on the eve of a national convention business houses express little anxiety as to the future. A week end, with the holiday of Bunker Hill Day on a Monday, has produced the usual letting up locally.

The textile machinery industry is not active. This class of manufacturer sells largely on leases, with payments extending through several years. Cases are reported where the length of time granted in leases has been extended beyond the normal period, which is an indication of the state of the business. However, the belief exists that the expected revival of business on a large scale will bring with it a sharply increased demand for this class of machinery.

The U. S. Envelope Sealing Machine Company, 33 Lyman street, Springfield, Mass., states that it will not

be in the market for new equipment for at least a year. The company plans to build a shop at North Amherst, Mass., to manufacture a new envelope sealing machine, the invention of Carl Davis of Springfield. The corporation is a new one. Mr. Davis is the president, J. M. Fuller, Springfield, secretary, and Fred C. Kidder, Sunderland, Mass., treasurer. The site of the new factory permits the development of water power.

J. P. Thompson has been made general superintendent of the Van Norman Machine Tool Company, Springfield, Mass., which was recently organized to take over the business of the Waltham Watch Tool Company. Mr. Thompson was until recently general superintendent of the Cameron Steam Pump Company, New York, and was formerly with the Pond Company at its Plainfield Works. He has had a large experience in the manufacture of machine tools.

The Stevens-Duryea Company, Chicopee Falls, Mass., is completing the first unit of the large plant which will be constructed in the eastern part of Springfield, Mass. This structure is 80 x 508 ft., four stories, and will be used for the manufacture of auto bodies. The company proposes to install high pressure hydraulic presses for the manufacture of metal parts, so that the bodies will be interchangeable in their construction throughout. This building will be followed by others giving a combined floor space of 18 acres, which will be in addition to the nearly 7½ acres now occupied at Chicopee Falls. The largest building will be 80 x 1008 ft., four stories. Another building will be 80 x 600 ft. and two stories, and two one-story structures will be respectively 400 x 600 ft. and 80 x 600 ft. A train shed will be 100 x 400 ft. and there will be a large administration building. The material used is steel and brick. A feature of the building under construction is tnat it is dustproof and has waterproof floors.

It is announced in Waterbury that the Autotyre Company has purchased the factory and other property of the Baird Machine Company at Watertown, a suburb of the city, and will manufacture metal goods. The incorporators are Julius H. Cowles and Raymond G. Stewart, Waterbury, and Frederick M. Peasley, Cheshire, Conn.

Additions to general manufacturing plants in New England include the following: The Forsyth Dyeing Company, New Haven, Conn., mill building 70 x 249 ft., two stories; Potter & Snell, Deep River, Conn., factory 41 x 150 ft., one story; International Silver Company, Meriden, Conn., five-story addition; Eton, Crane & Piles Company, Pittsfield, Mass., two-story addition; Max Pollack & Co., Willimantic, Conn., three-story addition, 50 x 104 ft.; C. G. Bostwick, Hartford, Conn., four-story factory, 40 x 80 ft.

The Board of Contract and Supply, Hartford, Conn., will receive estimates July 9 for the equipment of a pumping station which will be a part of the sewerage system.

The Alvey-Ferguson Company, Cincinnati, Ohio, manufacturer of conveying machinery, announces the opening of a branch office at 405 Old South Building, Boston, Mass., which will be in charge of H. N. Hirschberg.

Philadelphia

PHILADELPHIA, PA., June 18, 1912.

Some little betterment in single tool buying is reported and merchants note a fair volume of business for this season of the year. While several good projects for machine tools are pending, the bulk of the sales has been confined to the smaller class of equipment and to single tools. The demand has been chiefly for tools of a somewhat special nature, such as grinders and automatic machinery. No fresh railway business has developed, although some few inquiries for single tools are still before the trade. Considerable attention is being given the convention of the Master Car Builders and Master Mechanics at Atlantic City. A number of the local concerns are exhibitors, and representatives of the trade are in daily attendance. Machine tool builders are receiving a slightly better volume of miscellaneous business. The trade is encouraged with the continued betterment in industrial conditions and looks forward to an improved demand, although considerable business will be necessary to bring conditions back to normal. There has been a marked betterment in the conditions surrounding the steel casting trade, and steel casting plants are better engaged than they have been for a long time. The increased consumption of pig iron in general gray iron foundry work is indicative of better conditions in that field. A fair volume of business is reported in second-hand machinery, boilers and engines, although there is still room for considerable improvement.

The Germantown Tool Works expects to contract for the erection of its new plant at Second street and Ashdale avenue the coming week. The buildings will comprise a group of seven, ranging from 30 to 40 ft. in width, and each 100 ft. long. A steam power plant of about 240 hp. will be installed but contracts have not been placed for this equipment. Some additional machine tools will be required, but this will be considered at a later date.

Ballinger & Perrot have completed plans for an additional building 131 x 402 ft., two stories, for the American Viscoes Company, Marcus Hook, Pa. It is stated that the only mechanical equipment required will be motors and shafting, which will be purchased by the American Viscoes Company.

The Moore Push Pin Company has purchased a plot of ground and factory, 215 x 201 ft., at Wayne Junction, formerly occupied by the Defender Dry Plate Company. A power plant is already installed and additional machinery required will be entirely of a special nature for the manufacture of push pins, etc.

Samuel G. Dixon, Commissioner of Health, 1900 Race street, will receive bids until June 29 for the construction of a central heating plant for the State Sanatorium for Tuberculosis, near Cresson, Pa.

John T. Windrim, architect and engineer, has completed plans for a sub-station 100 x 90 ft., one story, for the Philadelphia Electric Company, to be built on Ranstead street between Twentieth and Twenty-first streets.

Announcement has been made of an application for a charter under the laws of Pennsylvania for a corporation to be known as the General Pressed Metal Company, which will engage in the manufacture and sale of machinery, dies and tools. Benjamin F. Banes, Walter D. Banes and Charles A. Lindholm are named as incorporators.

James A. Freeman's Sons will sell at peremptory sale on June 25 the machinery and equipment of the Quiride Mfg. Company, Syracuse, N. Y. The machinery and equipment includes some 150 modern machine tools, both of standard and special types. Catalogues may be obtained on application to James A. Freeman's Sons, Twelfth and Chestnut streets, this city.

It is announced that a contract has been placed with Doyle & Co. by the Curtis Publishing Company for the construction of a ten-story addition, 150 x 235 ft., adjoining its present building, plans for which have been designed by Frank C. Roberts & Co., and Edgar V. Seeler, who designed the original structure. Details in reference to the work are not yet available.

Chicago

CHICAGO, ILL., June 18, 1912.

The machinery trade in this market has been favored with a decidedly encouraging degree of activity the past week. Miscellaneous sales of machines to city shops and users aggregated a fair volume alone. A portion of the lists of the Atchison, Topeka & Santa Fe Railroad has been placed. From Waterloo, Iowa, sales reported amount to $4,000 and a southern Michigan manufacturer has partially filled his requirements with a $3,000 purchase of tools. An inquiry from one of the nearby suburbs gives promise of new business, the value of which will total in the neighborhood of $8,000. The Indiana Steel Company has sent out a preliminary inquiry for prices on a number of shop tools for Gary works.

Sears, Roebuck & Co., Chicago, have obtained building permits providing for the erection of a five-story box factory on Harvard street, which is to cost $310,000.

The Oxweld-Acetylene Company, Chicago, has under way the building of a new plant to be 100 x 225 ft. and three stories, with an additional building 50 x 100 ft. An expenditure of $150,000 is contemplated.

The Brown Portable Elevator Company, Chicago, has been incorporated with a capital stock of $150,000, to manufacture engines, vehicles and other machinery. The incorporators are Frank H. Childs, Harwood Frost and George W. Clark.

The American Vibratometer Company has been organized with a capital stock of $5,000, to manufacture special machinery by Peter Scholl, W. J. Naughton and J. D. O'Donnell.

The Chicago, Peoria & St. Louis Railroad has under consideration the building of new shops and an effort

is being made at Springfield, Ill., to secure the shops for that city.

The Marinette & Green Bay Manufacturing Company, Marinette, Wis., has awarded a contract for the building of a new factory 62 x 172 ft. and to cost about $12,000.

The Forsythe Leather Company, Wauwatosa, Wis., is erecting two factory buildings of concrete construction, one 60 x 300 ft., four stories, and the other 45 x 150 ft. and one story.

The National Brake & Electric Company, Milwaukee, Wis., manufacturer of air brakes and air compressors, has had plans prepared for a new foundry to be constructed adjoining its present plant. The main building will be 80 x 240 ft., with two wings each 80 x 120 ft. and two stories. It will be equipped with a 15 to 20-ton 80-ft. span traveling crane, two 5-ton jib cranes, one 40-ft. span traveling crane and one 20-ft. traveling crane. There will also be a complete installation of cleaning and tumbling machinery, core ovens, etc. The foundry will be used entirely for the making of gray iron castings for the company's own use.

The City of Charleston, Ill., has sold an issue of $40,000 in bonds for the improvement of the local waterworks.

The Sangamon Meter Works, Springfield, Ill., has arranged for the erection of a $12,000 addition to its factory, the building to be 48 x 128 ft.

The Elgin, Joliet & Eastern Railroad, Chicago, is about to enlarge and improve its yard facilities at Joliet, Ill., involving an expenditure estimated at $350,000 upon its shop equipment.

W. W. Wilmerton, Rock Island, Ill., has purchased the patent rights for the Red Star Sanitary Vending Machine and is planning the erection of a factory building at Davenport.

The Dean Milling Company, Ava, Ill., has bought control of the Reliance Milling Company, of Murphysboro, Ill., and will increase the mechanical equipment.

Assessment rolls have been completed preliminary to the raising of the money for a $55,000 waterworks and sewer system for Wood River, Ill.

The City Council of Debeque, Colo., will open bids July 1 for the installation of a waterworks system to cost $20,000. A bond issue has been authorized.

Cleveland

CLEVELAND, OHIO. June 18, 1912.

The volume of machinery sales by dealers continues light. The demand for second-hand machinery is fairly good, but not much new machinery is being purchased. No inquiries for lots of tools of any size are coming out and few orders are reported for more than single tools. Manufacturers are generally busy but appear to have sufficient plant equipment and not many new manufacturing concerns are starting up that will need machinery equipment. The demand for most lines of general machinery, including handling equipment, continues fairly good and a good volume of new business is in prospect. Conditions in the foundry trade have improved and the demand is fairly active.

The Toledo Glass Company, Toledo, Ohio, a subsidiary of the Owens Bottle Machine Company, has acquired a 6-acre site near the Overland Automobile Company's plant and it is announced that it will build a large plant there.

The Overland Automobile Company, Toledo, Ohio, announces that it will increase its capital stock from $6,000,000 to $15,000,000, and will greatly enlarge its plant, adding about 60 acres to its present 80 acres of floor space. The largest new building will be 100 x 700 ft., three stories. A second building, 70 x 200 ft., two stories, is planned and a third, 60 x 130 ft. A fourth building, 100 x 300 ft. and five stories, will be built for use by the Kinsey Mfg. Company, manufacturer of automobile parts, a part of the Overland organization. Considerable new machinery will be installed.

The Chase-Dunipace Company, Toledo, Ohio, has been incorporated with a capital stock of $20,000 to take over the business of the Chase Mfg. Company, having a plant on Detroit avenue in that city. The company makes tools, special machinery, stamping specialties and springs. Additional equipment will be added and the erection of a new plant is under consideration. J. L. Chase is president and E. Dunipace is secretary and treasurer of the company.

Bids for the construction of an addition to the filtration plant in Sandusky, Ohio, will be received July 10. The estimated cost of improvements is $100,000.

Cambridge, Ohio, will vote June 27 on a bond issue of $100,000 for enlarging its water-works system and the installation of a purification plant.

A contract for the erection of a water-works system in Hubbard, Ohio, has been placed with the Cantrel Construction Company.

It is reported from Niles, Ohio, that the Stanley Mfg. Company will make extensive additions to its plant in that city. Two factory buildings, one 72 x 144 ft. and the other 49 x 50 ft., and a warehouse 80 x 104 ft., will be erected. The contract for the erection of building has been let to the McClintic-Marshall Construction Company.

Plans for the expansion of the plant of the Lima Locomotive & Engine Company, Lima, Ohio, include the issue of $2,000,000 in bonds, the proceeds of which it is stated will be used in large extensions which will more than double the capacity of the present plant.

Zanesville, Ohio, will shortly have plans prepared for a water-works system, including the erection of a new power house.

The Auglaize Power Company, of which J. M. Ashley of Toledo, Ohio, is president, has completed plans for a $200,000 power plant at Defiance, Ohio. It is stated that the contract for the equipment will be let shortly.

The Fremont Furnace Company, Fremont, Ohio, has been incorporated with a capital stock of $50,000 to manufacture furnaces, etc. The incorporators are T. C. Harris, J. H. Combs, W. R. Eberly, A. H. Jackson and A. E. Culbert.

W. B. Schott, of the Schott Engineering Company, Chicago, has bought property along the Sandusky River in Ballville, Ohio, which it is reported will be used as a site for a hydro-electric plant.

The Independent Electric & Construction Company, Toledo, Ohio, has been incorporated by Eugene Rheinfrank, L. J. Metzger, N. E. Evans and others. It is reported that the company will build an electric power plant in Maumee, Ohio.

Ashley, Ohio, will vote July 9 on the issue of $12,000 in bonds for the erection of an electric light plant.

The Interstate Pattern Company, Cleveland, Ohio, will enlarge the scope of its plant by the addition of some metal products and is in the market for some metal working machinery.

The Lake Erie Iron Company, Cleveland, Ohio, has let a contract for the erection of a two-story 36 x 50-ft. building to be used for pattern storage and a garage.

Heating equipment will be required for the Cleveland Infirmary buildings at Warrensville, Ohio. Bids will be received by Charles W. Stage, Director of Public Safety, July 2.

The Oakwood Street Railway Company, Dayton, Ohio, has awarded a contract for the erection of new car barns. The building will be 200 x 375 ft., a half of which will be devoted to car making and repair work.

The Piano & Heavy Box Truck Mfg. Company, Toledo, Ohio, has been incorporated with a capital stock of $20,000 to manufacture heavy trucks. A. T. Raynor, W. F. Runkle and others are incorporators.

The Wood Shovel & Tool Company, Piqua, Ohio, is building an addition to its plant 90 x 300 ft.

The Henderson Motor Car Company, Toledo, Ohio, has secured through a long time lease a factory belonging to the National Casket Company at North West and Fourteenth streets, Toledo, Ohio.

The Timken-Detroit Axle Company, Detroit, Mich., has acquired a building site between Central avenue and the Lake Shore Railroad in Toledo, Ohio, and it is reported that the company will build a plant in that city.

The Defiance Machine Works, Defiance, Ohio, builder of woodworking machinery, is erecting two saw-tooth buildings of fireproof construction, one 77 x 132 ft. and the other 97 x 115 ft. One building will be used for an erecting room and the other for cleaning castings for shafting, storage, grinding, and for use as a plate shop and for blacksmithing. The company is also adding some equipment to its foundry, including an electric elevator and other appliances, and is making a general change throughout its plant, adding new tools wherever needed.

The Smith Gas Power Company, Lexington, Richland County, Ohio, states that its shop is now work-

ing overtime and prospects for future business were never brighter. It reports among recent sales of gas producers for power the following orders totaling 3000 hp.: John Morrell & Co., Ottumwa, Iowa, 50 hp.; Lancaster Electric Light Company, Lancaster, Wis., 500 hp.; Galban & Co., Havana, Cuba, 25 hp.; William Franzen & Son, Milwaukee, Wis., 200 hp.; People's Light, Heat & Power Corporation, West Point, Va., 75 hp.; Mergenthaler Linotype Company, New York City, 300 hp.; Cork Insulator Company, Jersey City, N. J., 600 hp.; American Cotton Oil Company, New York City, 750 hp.; Staten Island Shipbuilding Company, Port Richmond, N. Y., 125 hp.; San Antonio Portland Cement Company, San Antonio, Texas, 400 hp.

Cincinnati

CINCINNATI, OHIO, June 18, 1912.

A number of local machine tool builders attended the Railroad Master Mechanics' Convention at Atlantic City last week, and as a result the railroad business is expected to improve. The demand for planers and medium-sized lathes from the domestic trade has been very good lately, and considerable of this business is coming from nearby customers. Second-hand machinery is quiet, and the expected demand from the South has not developed. Boiler and tank builders report a slight improvement. There has been an increase in the foundry business, especially with those foundries making a specialty of machine tool castings.

The Cincinnati Commercial Association, jointly with members of the Business Men's Club and the Chamber of Commerce, were guests of the different factories at Oakley on June 11. After inspection of the various plants a barbecue was served. The following plants were visited: The Cincinnati Bickford Tool Company, Cincinnati Milling Machine Company, Cincinnati Planer Company, Triumph Electric Company, Alvey-Ferguson Company, Modern Foundry Company, Cincinnati Lathe & Tool Company and the Incandescent Light & Stove Company. P. O. Geier, of the Cincinnati Milling Machine Company, was chairman of the entertainment committee.

Secretary W. B. Dickson, of the Cincinnati Branch, National Metal Trades Association, will soon issue the regular quarterly report for the quarter ending June 15, showing the activity of plants in this section at 84 per cent., as against 82 per cent. for the quarter ending March 15. These reports take as a standard the three months ending June 15, 1907, which were the most active in the history of the machine tool industry in this section of the country.

It is understood that the Stewart Iron Works Company, South Cincinnati, has plans under way for a plant that will more than double the capacity of its old factory recently destroyed by fire. It is also rumored that the company will engage in the manufacture of a new line that will require a considerable number of machine tools.

It is reported that the Long & Alstatter Company, Hamilton, Ohio, has acquired an additional building that will be fitted up for the manufacture of agricultural implements.

Work is progressing rapidly on the new addition to the plant of the Lodge & Shipley Machine Tool Company, Cincinnati, recently mentioned.

The Methodist Book Concern, Cincinnati, intends making an addition to its plant on Plum street, for which printing press and electrical machinery will be required.

A municipal lighting plant will probably be built by the city of Newport, Ky., if present plans of the City Council go through.

The Norwood Sash & Door Mfg. Company, Norwood, Ohio, has been incorporated with $100,000 capital stock, and has purchased the plant of the defunct Standard Milling Company, in Norwood. The factory will be enlarged and put in operation at an early date. Some woodworking equipment will be required.

The Warner Elevator Company, Cincinnati, has had plans prepared for a large addition to its plant on Spring Grove avenue. The proposed structure will be about 75 x 350 ft., two stories and of brick and steel construction.

Architect G. W. Drach, Cincinnati, is drawing up plans for the new plant of the National Machine Tool Company, recently mentioned.

A plan is under way for reorganizing the Platt Iron Works Company, Dayton, Ohio, which company has been in the hands of a receiver for several months past. It is understood that Eastern capitalists have been interested, and have made a tentative offer to furnish the necessary funds for the reorganization.

The Mansfield Foundry & Mfg. Company, Mansfield, Ohio, has been incorporated with $10,000 capital stock. H. L. Krumm and Oscar G. Jacob are named among the incorporators.

The American Cash Register Mfg. Company, Columbus, Ohio, has been incorporated with $600,000 capital stock, and has taken over the plant of a company bearing the same name. Extensive enlargements are planned to take care of the company's steadily increasing business.

The Ohio Board of Administration, Columbus State Hospital, Columbus, Ohio, will open bids June 26 for electrical equipment to be installed in two hospital buildings.

The Standard Malleable Iron Company, Columbus, Ohio, has changed its name to the Columbus Malleable Iron Company, and increased its capital stock from $10,000 to $150,000.

Detroit

DETROIT, MICH., June 18, 1912.

With few exceptions, machine tool dealers report a fair business in single tools with here and there an order for three or four tools. Business is running along in an even tenor, both sales and inquiries showing little change from week to week. A large number of factory extensions are in process of construction in Detroit, but the amount of new equipment which will have to be purchased is not so great as might be expected for the reason that in a number of cases the machines have been closely crowded and will simply be moved into the additions, thereby providing more working space. The past fortnight has been featured by an unusually large number of fires among factories in this district, and from reports received from most of the concerns involved it is certain that the plants will be rebuilt and new machinery installed.

There is a steady demand for shop supplies and equipment for outfitting small factories, and an active call for special machinery in the automobile accessory industry. Among standard tools, lathes seem to be in the best demand with one or two orders for large planers.

The Detroit Board of Commerce has concluded negotiations with the Vanguard Mfg. Company, Joliet, Ill., manufacturer of windshields, whereby the company will move its business to Detroit. A site has been secured and two buildings will be immediately erected, one 90 x 200 ft. and another 30 x 200.

The Arthur Colton Company, Detroit, manufacturing machinists, has had plans prepared by Mildner & Eisen, architects, for a new plant at Chene street and Jefferson avenue. The main building will be 148 x 180 ft. and two stories of reinforced concrete construction. The plans include a power plant 26 x 40 ft.

J. Calvert's Sons, contractors and builders, Detroit, have acquired a tract 400 x 500 ft. on the western city limits and will erect buildings and install modern equipment for the operation of a gravel and builders' supplies plant.

The plant of the Diamond Mfg. Company, Detroit, manufacturer of plumbers' supplies and automobile parts, was destroyed by fire June 8, entailing a loss estimated at $300,000. The company has now under construction a new plant and was to have vacated the building destroyed in a few weeks. This building was to have been occupied by the Detroit Copper & Brass Rolling Mills Works, and a new structure will probably be erected to accommodate this concern.

The Board of Water Commissioners, Detroit, will receive bids until June 25 for four boilers and a battery of automobile stokers.

The Michigan Central Railroad has taken out building permits covering the erection of a one-story concrete roundhouse to cost $60,000, and a one-story brick machine shop 62 x 227 ft., to cost $25,000.

The Burrell Engineering & Construction Company, Detroit, has been incorporated with $5,000 capital stock to carry on a general engineering business and deal in builders' machinery. James C. Burrell is the principal stockholder.

The National Iron Works, 973 Bethune avenue, Detroit, is about to erect a new one-story steel frame factory, 56 x 150 ft., to cost about $3,500.

The T. C. Radiator Company, Detroit, has been incorporated with $2,000 capital stock by Thomas Coffelder, A. E. Sherman and C. V. Jones. The new company will manufacture automobile radiators.

The Detroit Papier Mache Company, Detroit, has been incorporated with $10,000 capital stock to manufacture papier mâché specialties. The stockholders include Albert M. Draper and John C. Wheeler.

The Detroit office of Manning, Maxwell & Moore reports the installation of a 40-ton Shaw crane in the machine shop of the Detroit Shipbuilding Company and another of like capacity at the plant of the Ford Motor Car Company.

The village of Royal Oak, Mich., will hold a special election June 24 to vote on the question to bond for $33,000 with the privilege of an additional $5,000 for a new waterworks system.

The plant of the Sheffield Motor Car Company, Three Rivers, Mich., was damaged to the extent of $100,000 by fire June 11. It is reported that the burned buildings will be replaced.

The taxpayers of Bellevue, Mich., will vote June 24 on a proposition to bond for $30,000 for waterworks and sewers.

The plant of the Woodenware Company, Ludington, Mich., was destroyed by fire June 7, entailing a loss of approximately $50,000. The company is already making preparations to rebuild the plant. Clothespins are the concern's chief product.

The Piqua Handle & Mfg. Company, Thompsonville, Mich., is planning the expenditure of $20,000 in enlarging and improving its plant this summer, including the installation of additional equipment.

The Page Auto Hoist & Specialty Company, Grand Rapids, Mich., makers of automobile accessories, has been reorganized with a capital stock of $50,000, and is making plans for the erection of a larger plant to provide increased manufacturing facilities. It is rumored that the company may move its business to some other Michigan city.

The Davies Putnam Company has been incorporated with $40,000 capital stock at Grand Rapids, Mich., by Charles S. Davies, Joseph Griswold and William P. Putnam. The company is a reorganization of the Grand Rapids Woodcarving Company, maker of furniture specialties.

Contracts have been signed by the Werner & Pfeider Company of Cornstadt, Germany, and the Merchants & Manufacturers Association of Saginaw, Mich., providing for the construction of the company's new American factory. A site of 20 acres has been secured and buildings will be erected and equipment installed sufficient to supply the company's entire American business which has heretofore been largely served from the European factories. The company manufactures a complete line of baking, kneading and mixing machinery.

The Schwarz Foundry Company, Detroit, has obtained a permit for the building of a one story plant on Fort street, to cost $7,000.

The Advance Machine Company, Detroit, Mich., has been incorporated as a reorganization of the Hale Motor & Machine Company. The company has discontinued the manufacture of motors and will concentrate its attention to the machining of parts for automobiles, etc. The officers of the company are: P. M. Ditzler, president; Jay C. Hudson, vice-president; J. E. DuBois, treasurer, and R. J. Brennan, secretary.

Indianapolis

INDIANAPOLIS, IND., June 18, 1912.

The Consumers Carbide Gas Plant Company, Indianapolis, has been incorporated, with $100,000 capital stock, to manufacture acetylene gas machines, taking over the business of a smaller concern now in operation in the city. Newton J. McGuire is president; Charles W. Scoggin, secretary-treasurer; Adolph J. Schmidt, vice-president. A plant will be built.

The Indiana Machine & Wire Company, Indianapolis has been incorporated with $30,000 capital stock, to manufacture wire fence. The directors are G. W. Whittington, F. H. Irwin and M. F. Cox.

The Ideal Motor Car Company, Indianapolis, has been incorporated with $100,000 capital stock to manufacture automobiles. The directors are H. F. Campbell, H. C. Stutz and W. F. Glickert.

The Indiana Scientific Laboratories, Terre Haute, Ind., has been incorporated with $10,000 capital stock, to carry on a mechanical and chemical laboratories business. The directors are J. W. Glass, C. V. Glass and A. L. Leazenby.

The General Gas Company, Noblesville, Ind., has been incorporated with $10,000 capital stock, as a public utility concern. The directors are C. R. Heath, R. S. Truitt and F. S. Heath. The company proposes to supply water, light, heat or power to adjoining towns, Westfield, Carmel, Sheridan, Cicero, Arcadia, Atlanta, Lapel, Pendleton, Ingalls, Fortville, Tipton, Jackson and Sharpsville.

James I. Handley of Indianapolis, president of the American Motors Company; Fletcher Goodwill, Detroit; S. H. Penfield and Benjamin S. Dean, Jamestown, N. Y., have made a proposition to the Commercial Club of Columbus, Ind., which will probably be accepted, to convert the buildings of the former Jenney Mfg. Company into a foundry for the manufacture of automobile cylinders. The new company will be known as the Caldwell Auto Parts Company.

The Kernodle-McDaniel Mfg. Company, Frankfort, Ind., has been incorporated with $10,000 capital stock, to manufacture auto parts. The directors are W. T. Kernodle, M. Kernodle and P. McDaniel.

The Public Utilities Company, Evansville, Ind., has been incorporated with $6,000,000 capital stock, being a merger of the gas, steam and electric plants and the street railway. Among the incorporators are John G. McKee, Lafayette; Walter J. McGraw, Lafayette, and William Winter, Indianapolis.

The Wayne Oil Tank & Pump Company, Fort Wayne, Ind., is building a new shop 70 x 200 ft. as an addition to its present plant. It is of steel and concrete construction and will have a 5-ton crane installed.

The city clerk, Columbus, Ind., will open bids July 2 for the construction of a mechanical water filter.

The New Albany Mfg. Company, New Albany, Ind., reports the demand for stone-quarrying equipment to be fair, with the outlook good. The company recently sold a rather large lot of equipment for shipment to Canada.

The Central South

LOUISVILLE, KY., June 18, 1912.

More activity has been shown in the machinery trade the past week than for a long time. The chief feature of the situation is the improvement in the demand for power plant equipment. Much of the business of this kind now being placed is for additions to the power facilities of manufacturers. Woodworking machinery is in improved demand, and much business on this line is being done. A good many inquiries are out and, while it is conceded that business will normally be rather quiet during the next couple of months, indications are rather favorable for better results than the average.

The Booker Box Company, Louisville, will purchase additional woodworking machinery. The company recently bought 37 motors.

The Modern Construction Company, Louisville, has been organized with $10,000 capital stock for the manufacture of tile. F. C. Goodwin, 1157 South First street, Louisville, is in charge.

The contract for the construction of the 11-story office building of the Great Southern Fire Insurance Company, Louisville, has been let to the H. H. Snyder Company. This refers only to the reinforced concrete frame. Bids on the heating plant and three electric elevators are now being received by the architects, Joseph & Joseph, Louisville.

Announcement has been made by the J. F. Hillerich & Sons Company, Louisville, that an addition to its plant will be erected at once, besides a large warehouse. The company will require a considerable amount of woodworking machinery.

The Lincoln Institute, Simpsonville, Ky., has announced the receipt of a gift of $10,000 which will be used in the construction of a power house.

The Transylvania University, Lexington, Ky., has announced plans for the construction of a central plant to supply heat, light and power to all its buildings.

The Fulton Mfg. Company, Fulton, Ky., the plant of which was recently burned, will rebuild at Shreveport, La. It will be in the market for woodworking and power machinery.

The D. B. Murphy Company, London, Ky., has been incorporated with $50,000 capital stock with Theodore McFadden general manager. Staves, lumber and cross-ties will be manufactured.

The New Castle Casket Company, New Castle, Ind., is considering the removal of its plant to Covington, Ky. The Covington Industrial Club has the matter in charge.

The Sphar Brick Company, Maysville, Ky., had announced plans for the installation of machinery for the manufacture of a new line of brick in addition to the pressed brick which it has been making heretofore.

The American Tobacco Company has leased a site in Lexington, Ky., and will erect a redrying plant. The cost of the machinery to be installed is estimated at $25,000.

The R. J. Reynolds Tobacco Company, Winston-Salem, N. C., has purchased the tobacco warehouse of the Farmers' Tobacco Warehouse Company, Lexington, Ky., and will convert it into a redrying plant. Boilers and other equipment will be required. The cost of the improvements will be $20,000.

The Cincinnati Locomotive & Car Works, which as recently announced will move its plant from Cincinnati to Covington, Ky., has filed articles of incorporation with a capital stock of $25,000. William B. Edwards, John S. Glenn and Daniel Goldstein are the incorporators. Mr. Glenn is president of the company.

The Elkhorn Consolidated Coal & Coke Company, Pikeville, Ky., is constructing a water-works system. The company has also announced plans for the construction of additional coke ovens.

Berea College, Berea, Ky., has plans for the construction of a new power plant. An engine and two boilers will be installed.

The Tennessee Exploration Company, a subsidiary of the American Zinc Company, Bank & Trust Building, Knoxville, Tenn., is reported to have plans for the construction of a zinc plant at Mascot, Tenn., with a daily capacity of 2500 tons a day. In connection with this work the company will build a hydro-electric power plant on the Holston River, which is near by.

The Lenoir Car Works, Lenoir City, Tenn., is considering the enlargement of its plant, it is reported. The car-wheel foundry will be one of the departments to be given an increased capacity.

The Tennessee Power Company is preparing to begin the construction of a second water-power plant on Ocoee River, several miles above that recently completed at Parksville, Tenn. The construction work is in charge of J. A. Cunningham, superintendent, and John G. Munson, construction engineer.

Among the contracts yet to be awarded by the city of Dayton, Tenn., in the construction of its water plant are those for the equipment in the pumping station and power plant. John A. Dutton is chairman of the committee in charge.

The Blake Car Steps Works, Charlotte, N. C., has been organized with $250,000 capital stock by John S. Blake and others. A patented folding car step will be manufactured.

The G. E. McKenney Trunk Company, Chattanooga, Tenn., is considering the enlargement of its factory. Woodworking equipment will be the principal requirement.

It is reported that the Tennessee Timber, Coal & Iron Company will develop iron, coal and timber lands at Nemo, Tenn., where it has large holdings. The installation of mining equipment, the erection of a sawmill and the construction of a railroad and bridge are among the projects outlined. The general offices of the company are at Harriman, Tenn., with S. W. Miller, general superintendent, in charge.

The Cumberland Heading Company, Livingston, Tenn., has been organized for the manufacture of cooperage stock. Equipment will be purchased immediately. W. T. Spurrier, A. R. Williams and R. H. Hankins are members of the concern.

Birmingham

BIRMINGHAM, ALA., June 18, 1912.

The machinery trade is quiet, but steady. An increase in the demand for gas and gasolene engines is noted, especially those of small horsepower for pumping purposes. Sawmills continue to order pumps and engines and there is also some demand from the coal mines. The demand for machine tools is fair. Several new machine shops are causing this inquiry. Cotton gins are in the market straight along for engines and there is a satisfactory business in that line. June business has been altogether satisfactory thus far.

The American Radiator Company is reported to have purchased 15 acres of land near the Dimmick pipe plant in North Birmingham for a site for its permanent factory in Birmingham. It has for several years operated in leased premises. A modern radiator plant is to be erected.

Athens, Ala., has voted an issuance of $38,000 of bonds for sewers and installing a lighting plant.

George H. Cook, of Brunswick, and C. L. Pratt, of Jacksonville, Fla., have incorporated the Pratt Lumber Company, with a capital stock of $10,000 and will establish a sawmill, etc., at Brunswick, Ga.

Fire destroyed the lumber mill of the Arlington Company at Arlington, Ga., with a loss of $15,000.

Farmers' Ginning Company, Tifton, Ga., has been chartered with a capital stock of $6,000.

The Macon Cabinet Works, Macon, Ga., has been incorporated with a capital stock of $12,500, by Philip Dohn, Carl Dohn and others, to manufacture furniture and fixtures.

The Vidalia Compress & Power Company, Vidalia, Ga., will erect a $50,000 compress. Murray M. Stewart, of Savannah, Ga., is president.

The Consumers Ice Company, Key West, Fla., will increase its capacity from 75 to 150 tons and otherwise enlarge its plant.

James Harrison will install a small ice plant at Montezuma, Ga.

L. M. Aldrich and associates, of New York, have applied for a franchise for the establishing of a gas plant at Athens, Ga.

The Kaul Lumber Company, Birmingham, Ala., has commenced the work of establishing a model industrial town on the outskirts of Tuscaloosa. A short line railroad will bring lumber from the interior and large mills will be erected. Waterworks, sewers and lighting plants will be among the appurtenances of the new town.

St. Louis

ST. LOUIS, MO., June 17, 1912.

Much interest is taken in the machine tool market in the tentative announcement that the Wabash Railroad receivers are contemplating the construction of new shops at Decatur, Ill., to cost $750,000 for buildings and equipment. While this is not yet definite the information given out is sufficient to cause some interested speculation as to the long list of tools that this construction would mean. Otherwise the week was quiet, though the sum total of the business was quite satisfactory when the individual orders were cast up. The collections continue reasonably satisfactory.

The Barry-Wehmiller Machinery Company, St. Louis, whose enlargement plans were recently referred to, has extended its plans and has acquired additional ground for the purpose.

The Automatic Register Company, A. D. Branham in charge, is considering an offer from the St. Louis Business Men's League to locate its new plant in St. Louis. Its present headquarters are in East St. Louis.

The Bernet, Craft & Kauffmann Milling Company, St. Louis, has completed plans to considerably increase its milling capacity. A new building will be started at once.

The Brunswick Light & Water Company, of Brunswick, Mo., has been incorporated with a preliminary capital stock of $10,000 to equip public service plants at Brunswick. The incorporators are John Meyers, Jr., L. H. Herring, George W. Cunningham, J. G. Bartow, H. L. Mann and John Meyers, Sr.

The Smith Bros. Lumber Company, Carterville, Mo., has been organized with $25,000 capital stock by M. R., Walter, L. and Frank H. Smith and Milo T. Jones to equip a sawmill and plaining mill.

The Kansas City Concrete Pipe Company, Kansas City, Mo., with $25,000 capital stock, organized by W. C. Mullins, B. M. Hopkins and M. A. Fyke, is in the market for concrete making machinery.

The Thobal Electric Company, St. Louis, has been incorporated with $50,000 capital stock by S. Tibbals, E. Thomas and L. Knapp to equip a plant for the manufacture of electrical apparatus.

A veneering and box-making plant is to be built at Camden, Ark., by the Cartier & Hengstler Company, Ludington, Mich.

The Western Wheelbarrow Mfg. Company, Fort Smith, Ark., has increased its capital stock from $200,000 to $225,000 for the purpose of increasing its mechanical equipment.

A committee headed by I. Idenheim is considering plans for an electric light plant to cost about $75,000 to supply service to Biloxi, Miss.

Bethany, Mo., has perfected a bond issue of $25,000 for the construction of an electric light plant and waterworks. The details are in the hands of J. B. McClure, city clerk.

The Lawton Railway & Lighting Company has obtained a franchise to construct a power plant, electric light plant and street railway system at Lawton. The company is headed by B. R. Stephens.

Negotiations are pending for the establishment of an iron foundry by Martin Bros., Belleville, Ill., at Paragould, Ark.

The Newton County Gas, Oil & Mineral Company, Swain, Ark., has been incorporated with $110,000 capital stock, with D. L. Cooley as president, to develop properties acquired by the company.

The Commercial Gas & Oil Company, Shreveport, La., has been organized with $100,000 capital stock by T. P. Loyd, E. L. Sanderson and A. A. Herold to develop newly tested properties.

An ice plant is to be erected at Webb City, Mo., the promotion being in the hands of F. C. Wallower.

The Rock Creek Mining & Milling Company, Durant, Okla., has been incorporated with $25,000 capital stock by J. T. McIntosh and V. E. Kendall of Durant and John T. Petty and C. M. Ferguson of Kenefick, Okla.

The Board of Trustees, Kenefick, Okla., will open bids June 24 for the construction of a waterworks system, the estimated cost of which is $14,000. W. E. Strickland is town clerk.

Texas

AUSTIN, TEXAS, June 15, 1912.

There promises to be an early renewal of the demand for American machinery in Mexico. Conditions in that country are rapidly improving, according to reliable reports that are received from various sections. It is believed that it will be only a short time until complete tranquillity is restored all over the republic. While mining and industrial operations generally have been going on with much less restriction than might be supposed there has not been much done in the way of installing improvements and establishing new plants of various kinds. Many projects of this character have been held in abeyance pending a settlement of the revolutionary disturbances. There is every reason to believe that an extraordinary demand for various kinds of American machinery, particularly for mines and manufacturing plants, will quickly follow a settlement of political troubles.

In some localities rain is badly needed for corn crops, but generally speaking, the agricultural situation is considered above the normal. All lines of machinery trades are busy and prosperous.

Edward McGinley is preparing to install an electric light plant and ice factory at Sanderson.

The C. L. Smith Oil Company has been organized at Beaumont, with a capital stock of $100,000 for the purpose of operating in the Goose Creek oil field.

Dr. F. S. Pearson of New York and associates have under consideration the construction of a large dam across the Devil's River about 50 miles north of Del Rio, Texas, for the purpose of forming a storage reservoir to irrigate a large area of land and to provide initial energy for a hydroelectric plant.

The Lohn Oil Company, Brady, has been organized with a capital stock of $50,000. The incorporators are S. D. Betts, J. A. Copeland, James P. Hagler and D. M. McDonald. It will develop oil lands in that section.

Clyde L. Wright and associates are erecting a cotton compress at Elgin.

Plans are being made for a waterworks plant and distributing system that will be installed at College Station, for the providing for the State Agricultural & Mechanical College.

Alexander Sprunt & Son have purchased a site in the Magnolia Park suburb near Houston for a large cotton compress and warehouses. The site embraces 8½ acres, including 1000 ft. of frontage on the ship channel.

The Houston Gas & Fuel Company has purchased 12 lots near its present plant in the eastern part of Houston, upon which it will erect additions to its gas manufacturing facilities at a cost of $500,000.

The Pearsall Land & Irrigation Company, Pearsall, which has been organized with a capital stock of $100,000, will construct dams across the Frio and Leona Rivers and build a large system of canals, flumes and ditches for the purpose of irrigation in that section. The incorporators are W. S. Haynes, G. B. Gouger, George M. Clifton, all of San Antonio; J. H. Bain of Stockdale and W. W. McCrory of Edna.

The Volt Ampere Company, San Antonio, recently organized with a capital stock of $10,000, is establishing a plant for the manufacture of electrical appliances. The incorporators are W. G. E. Rolaff, J. O. Luthy and Yale Hicks.

The Artesia Light & Power Company of Artesia, N. M., is preparing to make extensive improvements to the plant. It will install a large amount of additional equipment. Besides providing power for the operation of irrigation pumping plants the company proposes to put down wells and install the pumps for farmers. The company will spend about $250,000 in improvements.

An application has been made by the citizens of Villa de Guadalupe, a suburb of Mexico City, Mexico, to the Government for aid in the installation of a waterworks plant and distributing system for that suburb. It is estimated that the cost of the proposed works will be about $200,000.

C. H. Waterhouse of San Antonio will construct a large system of irrigation near Calallen, Texas, for the purpose of watering a big tract of land.

The Uvalde Rock Asphalt Company which has been organized at Beaumont, with a capital stock of $150,000 will install machinery for mining and preparing for commercial purposes an extensive deposit of asphalt. The incorporators are J. B. Smyth, R. L. White and W. M. Crook.

The Mexican Midland Light & Power Company has been incorporated in Canada under the laws of the Province of Ontario to work the concessions granted to the Compania Hydro-Electrica Mexicana, S. A., of Tampico, Mexico. These concessions authorize the development of the waterfalls of the Rio Naranjo and the Rio Blanco for the purpose of generating electric power. The power available, with the construction of only one small reservoir, will, it is said, be 65,000 hp. during the whole year and that from the Rio Blanco is stated to be 35,000 hp. The company is negotiating with the principal power consumers of various towns, including Tampico, San Luis, Potosi and Monterey, and it is claimed there is already a market for all power to be generated by it.

The Pacific Coast

PORTLAND, ORE., June 11, 1912.

Aside from the railroad inquiry recently mentioned, nothing of special importance has developed in this market. There is a moderate demand for single tools, as a few shops are making minor improvements, but there are few large installations in prospect. Contractors' equipment of all descriptions is moving well, both along the coast and in the interior, and there is a good steady demand for woodworking machinery. A few orders are coming out for complete saw or planing mill outfits, though in most cases purchases are made for established plants. Municipal business is an item of some importance, several inquiries being in prospect for waterworks and electric lighting plants, road building machinery, etc., and pumps find a fair market through the interior. Plans are under way for several hydro-electric projects, from which important business is expected later in the season. The shipbuilding business is still fairly active, but the work is mainly on small vessels, many of which are powered with gasolene engines.

The Stone & Webster Company has the construction contract for a large dam and tunnel on White Salmon River, Ore., for the Northwestern Electric Company, which is beginning work on a large hydro-electric development.

The Oregon Power Company is developing plans for a hydro-electric plant east of Eugene, Ore.

A contract for two traveling cranes for use on the lock of the Lake Washington ship canal, near Seattle, Wash., has been awarded to the Modern Steel Construction Company, at about $18,000.

The trustees of Reed College, this city, are taking figures on a light, heat and power plant to be installed on the college grounds at an estimated cost of about $40,000.

The Vancouver Flour Mill Company, Vancouver, Wash., has taken over the plant of the Bashford Milling Company, that city, and will put in a lot of new equipment.

J. A. Dupuis, Pendleton, Ore., inventor of a new metal window, is planning to install a factory in this city.

A recent report that the Imperial Gas Engine Company, San Francisco, would move its plant to Seattle, Wash., is officially denied.

It is reported that the capacity of the shops of the Chicago, Milwaukee & Puget Sound Railroad at Deer Lodge, Mont., will be doubled this summer.

The Standard Oil Company is preparing to add two new boiler houses, with 15 boilers each, to its large refining plant at Richmond, Cal.

Carl Leonhardt, a prominent contract of Los Angeles, Cal., is figuring on the installation of a cement plant near that city.

Interests connected with the Dow Pumping Engine Works, Alameda, Cal., are about to build a large plant in that city for the manufacture of an internal combustion, oil engine.

Eastern Canada

TORONTO, ONT., June 15, 1912.

Some of the leading grain merchants estimate the coming wheat crop in the Canadian West at as high a total as 250,000,000 bushels. This means a very large buying power for the relatively small population of the prairie provinces, and a great trade for Ontario and other Eastern Canada manufacturers. The manufacturers are looking forward to an unusually large demand from that quarter and are regulating their output accordingly, so far as they can with the existing labor resources at their disposal. Immigration continues to swell in volume and in buying capacity but it goes to enlarge the Canadian demand for the products of factories, not to recruit the skilled labor supply for those factories. The bankers appear to be giving good support to the manufacturers. But the Canadian manufacturers are not the only ones who are planning a big campaign. The manufacturers of the United Kingdom are more than ever interested in the Canadian market. A party of them is now touring Canada. There are more than 50 men in the party, and they are said to represent a total capital in plants of $140,000,000.

The Water Works Commission of Berlin, Ont., has awarded the contract for constructing a reservoir of 1,000,000-gal. capacity, in connection with the new $100,000 extension plant which is in progress this year. John Paterson of St. Mary's will construct the reservoir at a cost of $15,450.

The Grand Trunk Railway is about to start the erection of new shops in Brockville, Ont. The new buildings will have accommodation for 47 engines. One of the present shops will be used as an addition to the freight shed.

The Dominion Government is spending $10,000,000 to $12,000,000 on harbor improvements and equipment at Montreal.

The Canadian Northern Railway Company's programme of improvements at Montreal will total more than $20,000,000 in the next three years.

Sir William Mackenzie, president of the Canadian Northern Railway Company, has returned to Toronto from a tour of the West. He announces that improvements on the system in the vicinity of Toronto will be carried out at a cost of many million dollars. They will include new yards and shops at Leaside Junction, which will be fully as large as those planned for Port Mann, if not larger.

Western Canada

WINNIPEG, MAN., June 13, 1912.

The encouraging crop outlook seems to stimulate industrial activity in all of western Canada. A great deal in this country depends on the grain crop, and prospects so far are excellent. There is a good demand for machinery and machinery parts, with a very healthy feeling in trade generally.

The Town Council of Humboldt, Sask., has decided to proceed to install an electric light and waterworks system. A large share of the work will be done this summer.

The Edmonton Brewing & Malting Company, Edmonton, Alberta, has started to erect a building for the large new plant to be established there. It will comprise very modern equipment, and will entail an expenditure of $450,000.

The authorities of the town of High River, Alberta, are about to call for tenders for pumping machinery, pump house and sewage disposal works, also engineering supplies to cost $125,000. The secretary of the town is G. E. Mack, and the engineers, Chipman & Powers, Mail Building, Toronto.

The Port Nelson Company, Ltd., Winnipeg, has been incorporated with a capital stock of $1,000,000, to manufacture and deal in lumber, pulp, paper, etc. The incorporators are W. J. Johnston, P. J. Dixon, G. H. Dutton and others, all of Winnipeg.

The Manitoba Cold Storage Company, Ltd., Winnipeg, will erect a building this summer at a cost of $250,000, and double the capacity of its plant. Provision will be made for a complete system of mechanical refrigeration.

The Alsip Brick & Supply Company, Ltd., Winnipeg, will establish a $100,000 brick manufacturing plant at Edmonton, Alberta. The president of the company is W. P. Alsip, Winnipeg. The general manager at Edmonton will be J. A. Bullman.

The Lake of the Woods Milling Company, Ltd., Winnipeg, is undertaking extensive improvements on the power plant in connection with the big mill of the company at Keewatin.

The Saskatchewan Co-operative Elevator Company, Regina, Sask., will build about 70 elevators this summer in different parts of the province. It is estimated that the capacity of the company's elevators, which is now about 1,500,000 bushels, will be increased to about 4,000,000 bushels.

It is said that the Reliance Sash & Door Factory, Vancouver, B. C., will have to make further additions to its plant on account of the heavy volume of business on order.

Hunter Bros., Blaine, Wash., are erecting a shingle mill at Colebrook, B. C. Three machines will be operated.

Hon. Robert Rogers, Canadian minister of the interior, announces that the Government will proceed at once to erect a terminal elevator of 3,000,000 bushels capacity at Fort William. The site has already been purchased.

Thomas Black, of Winnipeg, is negotiating to establish a wire fence plant at Fort William, at a cost of about $200,000.

The B. C. Electric Railway Company, Vancouver, B. C., has awarded to C. C. Moore & Co., Seattle and San Francisco, a contract for the construction of a steam auxiliary plant on Vancouver Island, which will involve the expenditure of $400,000.

Government Purchases

WASHINGTON, D. C., June 17, 1912.

The Bureau of Yards and Docks, Navy Department, Washington, will open bids July 13 for the construction and furnishing of a steam-driven ice-making and refrigerating plant for the naval station at Guantanamo, Cuba. The specifications generally call for an ammonia ice-making plant of 5-ton daily capacity and a refrigerating plant, one ice storage, two cold storage rooms and an anteroom and the necessary auxiliary apparatus.

The Bureau of Yards and Docks, Navy Department, Washington, will open bids July 6 for four electrically and 18 hand-operated traveling cranes for the naval station at Pearl Harbor, Hawaii.

The supervising architect, Treasury Department, Washington, will open bids July 18 for furnishing the mechanical equipment for the United States post office at Jersey City, N. J.

The constructing quartermaster, United States Army, Fort Myer, Va., opened bids June 12 for the removal of old boilers and installing new ones in the post hospital as follows:

Standard Engineering Company, Washington, $3,855; L. B. Jacobs, Washington, D. C., $4,445; Newport Contracting & Engineering Company, Newport News, Va., $3,845; E. J. Sebring Company, Washington, $3,863; Coberth, Haines & White, Washington $3,775; Earle & Cook, Washington, $4,000.

The lighthouse inspector, second district, Boston, Mass., opened bids May 28 for furnishing two Scotch boilers complete with uptake, stack, and fittings as follows:

The Hodge Boiler Works, East Boston, Mass., $6,135; Bertelsen & Peterson Engineering Company, $6,200; Bath Iron Works, $6,675; J. F. Foster, $9,853.

The Baird Machine Company, which has recently moved into its new plant in Bridgeport, Conn., reports increasing business the past month, showing the largest sales in the history of the concern. For about eight years it has been necessary for this company to practically continue overtime to keep up with orders, some winters operating both a day and night gang. Several times the capacity of the plant has been about doubled, hoping to do away with this overtime and particularly so when the new plant was completed, where greater and better facilities were provided than ever before. Overtime has had to be continued, however, and a night gang again seems necessary to keep up with sales. The company makes special and standard automatic, wire working machinery, presses, eyelet machines and tumbling equipment. It is particularly well equipped for building special automatic machinery.

The Cambria Steel Company, Johnstown, Pa., states that the three additional open-hearth furnaces which are being built at the Franklin plant will have a nominal capacity of 75 tons each. They carry with them necessary building and additional crane and producer equipment. The producers will be of the Taylor type.

Trade Publications

Automatic Time Switch.—General Electric Company, Schenectady, N. Y. Bulletin No. 4893. Is devoted to a general description of the two automatic time switches designed to start or stop the operation of lamps, motors or other electrical appliances at times or places where personal attention would be both inconvenient and expensive. The bulletin contains connection and dimension diagrams.

Drills.—Cleveland Twist Drill Company, Cleveland, Ohio. Folder. Relates to the Paragon flatwist drills and shows the new drive which was illustrated in *The Iron Age*, October 27, 1910. One of the features of the folder is the reproduction of facsimiles of the articles which appeared in the various technical papers calling attention to the record made by these drills at Atlantic City in June, 1911, when a hole was drilled at the rate of 57½ in. per minute through cast iron.

Water Softeners.—Kennicott Water Softener Company, Chicago Heights, Ill. Catalogue. Relates to various types of water softeners and shows a number of installations both in this country and all parts of the world. The construction of the water softener is shown and its operation is described at length. Mention is also made of the line of steel tanks and towers built by this company.

Gas Producer.—New England Gas Producer Company, Tremont Building, Boston, Mass. Pamphlet. Points out how the Akerlund gas producer generates power and reduces expenses. The construction and the operation of this producer are discussed at length, the text being supplemented by line and halftone engravings. An illustrated description of this producer appeared in *The Iron Age*, December 14, 1911.

Grinding Machines.—Heald Machine Company, Worcester, Mass. Pamphlet. Contains a reprint of a paper on oversize standards for pistons and rings presented at the summer meeting of the Society of Automobile Engineers, June, 1911. The text of the paper is supplemented by engravings of various grinding machines and attachments built by this company.

Wheel Barrows.—A. Buch's Sons Company, Elizabethtown, Pa. Catalogue. Illustrates a line of steel and wooden wheel barrows for use in handling coal, pig metal and ingots around the foundry. These barrows are made of steel with steel wheels and iron frames. A two-wheel charging barrow for blast furnace use, which is made in ten different sizes, is also shown.

Electric Fans.—Emerson Electric Mfg. Company, 2024 Washington avenue, St. Louis, Mo. Catalogue No. 6000. Size, 6 x 9 in.; pages, 63. This is the company's 1912 catalogue describing and illustrating a line of fans for direct and alternating current. These are made in all of the customary styles for use on desks, brackets and columns, in both the fixed and oscillating types. All of the fans have three different speeds and are made in the swiveling pinion, oscillating and hinged styles. Mention is also made of the ceiling fans which are made with two, four and six blades either with or without electric lights at the lower end and column and exhaust fans. All of the fans are illustrated and their construction is described at some length.

Recording Thermometers and Level Gauges.—Industrial Instrument Company, Foxboro, Mass. Two bulletins. No. 58 illustrates a line of thermometers and thermographs for indicating and recording temperature for various ranges. The different scales used in the thermometers are reproduced together with specimen charts for the thermographs. Views of the several styles of instruments together with the bulbs used are included. Bulletin No. 59 describes a recording liquid level gauge which is designed to give a continuous record in ink on a circular paper chart of the hight of water or liquids in tanks, reservoirs, etc. All of these instruments operate by the transmission of air pressure to the recording mechanism.

Smoke Consumer.—Eureka Smoke Consumer Company, Rochester, N. Y. Pamphlet. Calls attention to a smoke consumer which is said to materially decrease fuel bills by reason of the savings it effects. A number of test reports are included together wiih reproductions of testimonial letters.

Engines and Boilers.—C. H. Dutton Company, Kalamazoo, Mich. Catalogue. This is the company's sixteenth annual catalogue describing and illustrating a line of automatic, horizontal and vertical engines and vertical and horizontal stationary tubular boilers and a submerged flue tubular boiler. The various styles of fronts are shown together with the measurements of the settings. A list of the different types of grates for the vertical boilers and a numbered list of repair parts for the engines complete the catalogue.

Sheet Metal Working Machinery.—V & O Press Company, Glendale, Brooklyn, N. Y. Two bulletins. No. 1A describes the standard line of inclinable presses which are fitted with various automatic appliances and are adapted to the production of almost every kind of sheet metal work. Bulletin No. 200 treats of a line of sheet metal working machinery which includes an automatic screw machine, a knurling machine, machines for forming wire rings, beading and flanging metal articles and re-rolling short pieces of various sections and a draw bench. All of these are illustrated and briefly described. In addition to the line of presses illustrated in the first bulletin, the company is prepared to design special machines to meet the requirements where the work cannot be done economically on a regular press.

Vises.—Rock Island Mfg. Company, Rock Island, Ill. Catalogue F. Describes and illustrates a line of vises for various services. Among the styles covered are vises for machinists, blacksmiths, car builders, locomotive works, wood workers, carriage manufacturers and mechanics generally. Mention is also made of an anvil vise, grinding machines, jack screws and a blacksmith's drilling machine. In addition to engravings of the vises completely assembled, views are given in the back of the various parts of the different vises lettered for identification.

Internal Combustion Engine.—Ferro Machine & Foundry Company, Hubbard avenue and East Sixty-sixth street, Cleveland, Ohio. Catalogue. Size, 9 x 12 in.; pages, 48. Pertains to a line of internal combustion engines of the marine type. After a brief foreword the history of the gasoline engine is briefly given followed by a complete description with numerous illustrations of the Ferro engine.

Oxy-Acetylene Welding.—Anderson Mfg. Company, Central National Bank Building, Tulsa, Okla. Pamphlet. Pertains to a line of oxy-acetylene welding or recasting plants for repairing machinery and castings and cracked or broken parts of machines and tools. A description of the construction of the plants is given followed by a statement of what they will do, the text being supplemented by a number of engravings.

Road Binder.—Solvay Process Company, Syracuse, N. Y. Pamphlet. Calls attention to the use of granulated calcium chloride as a road binder. The special advantages claimed for the use of this material are cleanliness, freedom from dust and economy in use.

Steel.—Vulcan Crucible Steel Company, Aliquippa, Pa. Pamphlet. Deals with the various types of crucible and acid open-hearth steel as well as the alloy steels which it produces. Special mention is made of the Hecla vanadium steel, the Wolfram high-speed steel and the Vulcan special vanadium steel. The properties of the vanadium steel are touched upon briefly and instructions given for its working.

Drilling Machine.—Burke Machinery Company, Conneaut, Ohio. Folder. Relates to a bench drilling machine in which the spindle is driven by an endless belt.

Inclosed Arc Lamps.—Western Electric Company, 463 West street, New York City. Bulletin No. 5500. Illustrations and descriptive matter explain the construction of the Hawthorn direct and alternating current inclosed arc lamps. The various types which are made for use on circuits ranging from 100 to 550 volts are shown together with accessories, such as reflectors and diffusers, globes, canopies, suspensions, etc. Among the various styles are marine and mill lamps, and one which is designed for operation with either two in series on 220-volt or five in series on 550-volt power circuits.

Friction Clutch.—Carlyle Johnson Machine Company, Manchester, Conn. Pamphlet. Calls attention to the use of the Johnson friction clutch as applied in machine building. For the most part the pamphlet consists of engravings showing the clutches applied to different machine tools, with a small view underneath of the type of clutch used. Among the machines to which it is applied are a 30-in. horizontal milling machine, a boring mill, a multiple spindle automatic screw machine, a vertical spindle milling machine, an upright drilling machine, a pipe threading machine and a four-slide wire forming machine.

Portable Electric Tools.—Chicago Pneumatic Tool Company, Fisher Building, Chicago, Ill. Two bulletins. No. E-19, superseding E-17, shows a new line of universal electric drilling machines for operation with either direct or alternating current. The other, No. E-20, superseding No. E-14, covers a line of direct-current heavy duty electric drilling machines with either side or center spindles, or both.

Wire Rope and Wire.—John A. Roebling's Sons Company, Trenton, N. J. Catalogue. Size 6 x 9 in.; pages, 183. After a brief historical account of the Roebling plant, the various kinds of wire rope are illustrated and briefly described. The different accessories such as sockets, hooks, thimbles, blocks, sheaves, etc., are shown and some general information about wire rope is given. The various uses of wire rope are mentioned and a number of illustrations of these are given. Mention is also made of the various types of wire made, which range from No. 30 gauge bookbinder's material to No. 0000 trolley wire. A number of tables of useful information and a complete index are also included.

Reinforcing Material.—Corrugated Bar Company, Buffalo, N. Y. Four pamphlets. Describe the various types of Corr-products, which include square and round bars, plate floors, line spacers, waterproofing materials and mesh sheets for walls and ceilings. All of these products are illustrated and briefly described, with directions for their use.

Feed Water Heaters.—Harrison Safety Boiler Works, North Philadelphia Station, Philadelphia, Pa. Fourth edition of engineering leaflet No. 12. Contains up-to-date and amplified statistics and considerable new matter of an engineering nature, especially in regard to recent theories and discoveries in connection with the corrosion of iron by boiler feed water. The way in which the formation of scale in boilers can be prevented by the use of the Sorge-Cochrane hot process water softening system is brought out, and the apparatus employed is illustrated.